



STC Test Report



Date: 2015-05-13

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No.: DM119349

Applicant: Intracom Asia Co., Ltd.
4F., No.77, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei
City 221, Taiwan

Manufacturer: Intracom Asia Co., Ltd.
4F., No.77, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei
City 221, Taiwan

Description of Sample(s): Submitted sample(s) said to be
Product: Mini 300N Wireless Adapter
Brand Name: Manhattan
Model Number: 525527
FCC ID: 2ADQY525527

Date Sample(s) Received: 2015-05-04

Date Tested: 2015-05-10 to 2015-05-12

Investigation Requested: Perform ElectroMagnetic Interference measurement in
accordance with FCC 47CFR [Codes of Federal Regulations]
Part 15: 2014 and ANSI C63.4:2009 for FCC Certification.

Conclusion(s): The submitted product COMPLIED with the requirements of
Federal Communications Commission [FCC] Rules and
Regulations Part 15. The tests were performed in accordance
with the standards described above and on Section 2.2 in this
Test Report.

Remark(s): ---



LONG Yun Jian, Along
Authorized Signatory
ElectroMagnetic Compatibility Department
For and on behalf of
STC (Dongguan) Company Limited

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770)

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1.0 General Details

1.1 Test Laboratory

STC (Dongguan) Company Limited
EMC Laboratory
68 Fumin Nan Road, Dalang, Dongguan, Guangdong, China

Telephone: (86 769) 81119888
Fax: (86 769) 81116222

1.2 Equipment Under Test [EUT] Description of Sample(s)

Product: Mini 300N Wireless Adapter
Manufacturer: Intracom Asia Co., Ltd.
4F., No.77, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei
City 221, Taiwan
Brand Name: Manhattan
Model Number: 525527
Rating: 5Vd.c. by PC USB Port

1.2.1 Description of EUT Operation

The Equipment Under Test (EUT) is a Mini 300N Wireless Adapter of Intracom Asia Co., Ltd., the transmission signal is digital modulated with channel frequency range 2412-2462MHz.. Transmit continuously with 100% duty cycle.

1.3 Date of Order

2015-05-04

1.4 Submitted Sample(s):

1 Sample

1.5 Test Duration

2015-05-10 to 2015-05-12

1.6 Country of Origin

China

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2.0 Technical Details

2.1 Investigations Requested

Perform Electromagnetic Interference measurements in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2014 Regulations and ANSI C63.4:2009 for FCC Certification.

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary						
Test Condition	Test Requirement	Test Method	Class / Severity	Test Result		
				Pass	Fail	N/A
Output Power of Fundamental Emissions	FCC 47CFR 15.247(b)(3)	ANSI C63.4:2009	N/A	☒	☐	☐
Radiated Emissions	FCC 47CFR 15.209	ANSI C63.4:2009	N/A	☒	☐	☐
Conducted Emissions	FCC 47CFR 15.207	ANSI C63.4:2009	N/A	☒	☐	☐
Power Spectral Density	FCC 47CFR 15.247(e)	N/A	N/A	☒	☐	☐
6dB Bandwidth	FCC 47CFR 15.247(a)(2)	N/A	N/A	☒	☐	☐
Band Edge Emissions	FCC 47CFR 15.247(d)	N/A	N/A	☒	☐	☐
RF Exposure	FCC 47CFR 15.247(i)	N/A	N/A	☒	☐	☐

Note: N/A - Not Applicable

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3.0 Test Results

3.1 Emission

3.1.1 Maximum Peak Output Power

Test Requirement: FCC 47CFR 15.247(b)(3)
Test Method: N/A
Test Date: 2015-05-11
Mode of Operation: WiFi mode

Test Method:

The RF output of the EUT was connected to the peak power meter. All the attenuation or cable loss will be added to the measured maximum output power. The results are recorded in mW.

The testing follows the Measurement Procedure of FCC KDB 558074 DTS D01 Meas. Guidance v03r02.

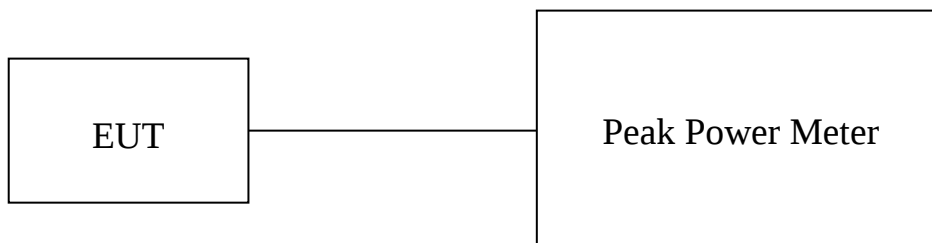
For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

802.11N transmit signals are correlated with each other.

Directional gain = Antenna Gain + beamforming Gain

Description		
802.11b	☐ With Beamforming	☒ Without Beamforming
802.11g	☐ With Beamforming	☒ Without Beamforming
802.11n	☒ With Beamforming	☐ Without Beamforming

Test Setup:



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Limits for Peak Output Power of Fundamental & Harmonics Emissions [FCC 47CFR 15.247]:

For Digital Transmission systems in 2400-2483.5 MHz Band: 1 Watt (30dBm)

Results of WiFi Tx Mode 802.11 b, (2412MHz to 2462MHz) : Pass (TX Unit) Maximum conducted output power (Antenna A)					
Channel	Frequency (MHz)	Result (dBm)	Antenna Gain (dBi)	Output Power (dBm)	Output Power (Watt)
Low	2412	12.302	2	14.302	0.026928
Middle	2437	12.222		14.222	0.026436
High	2462	12.219		14.219	0.026418

Results of WiFi Tx Mode 802.11 b, (2412MHz to 2462MHz) : Pass (TX Unit) Maximum conducted output power (Antenna B)					
Channel	Frequency (MHz)	Result (dBm)	Antenna Gain (dBi)	Output Power (dBm)	Output Power (Watt)
Low	2412	13.812	2	15.812	0.038124
Middle	2437	13.691		15.691	0.037077
High	2462	13.584		15.584	0.036174

Results of WiFi Tx Mode 802.11 g, (2412MHz to 2462MHz) : Pass (TX Unit) Maximum conducted output power (Antenna A)					
Channel	Frequency (MHz)	Result (dBm)	Antenna Gain (dBi)	Output Power (dBm)	Output Power (Watt)
Low	2412	12.115	2	14.115	0.025793
Middle	2437	12.098		14.098	0.025692
High	2462	12.206		14.206	0.026339

Results of WiFi Tx Mode 802.11 g, (2412MHz to 2462MHz) : Pass (TX Unit) Maximum conducted output power (Antenna B)					
Channel	Frequency (MHz)	Result (dBm)	Antenna Gain (dBi)	Output Power (dBm)	Output Power (Watt)
Low	2412	13.412	2	15.412	0.033978
Middle	2437	13.295		15.295	0.033845
High	2462	13.037		15.037	0.031893

Limits for Peak Output Power of Fundamental & Harmonics Emissions [FCC 47CFR 15.247]:

For Digital Transmission systems in 2400-2483.5 MHz Band: 1 Watt (30dBm)

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Results of WiFi Tx Mode 802.11 N20, (2412MHz to 2462MHz) : Pass (TX Unit) Maximum conducted output power (Antenna A)					
Channel	Frequency (MHz)	Result (dBm)	Antenna Gain (dBi)	Output Power (dBm)	Output Power (Watt)
Low	2412	8.658	2	10.658	0.011637
Middle	2437	8.594		10.594	0.011467
High	2462	8.580		10.580	0.011429

Results of WiFi Tx Mode 802.11 N20, (2412MHz to 2462MHz) : Pass (TX Unit) Maximum conducted output power (Antenna B)					
Channel	Frequency (MHz)	Result (dBm)	Antenna Gain (dBi)	Output Power (dBm)	Output Power (Watt)
Low	2412	9.758	2	11.758	0.014988
Middle	2437	9.733		11.733	0.014903
High	2462	9.731		11.731	0.014898

Results of WiFi Tx Mode 802.11 N40, (2422MHz to 2452MHz) : Pass (TX Unit) Maximum conducted output power (Antenna A)					
Channel	Frequency (MHz)	Result (dBm)	Antenna Gain (dBi)	Output Power (dBm)	Output Power (Watt)
Low	2422	7.772	2	9.772	0.009488
Middle	2437	7.748		9.748	0.009437
High	2452	7.735		9.735	0.009407

Results of WiFi Tx Mode 802.11 N40, (2422MHz to 2452MHz) : Pass (TX Unit) Maximum conducted output power (Antenna B)					
Channel	Frequency (MHz)	Result (dBm)	Antenna Gain (dBi)	Output Power (dBm)	Output Power (Watt)
Low	2422	8.874	2	10.874	0.012229
Middle	2437	8.864		10.864	0.012200
High	2452	8.895		10.895	0.012289

Limits for Peak Output Power of Fundamental & Harmonics Emissions [FCC 47CFR 15.247]:

For Digital Transmission systems in 2400-2483.5 MHz Band: 1 Watt (30dBm)

Results of WiFi Tx Mode 802.11 n20, (2412MHz to 2462MHz) : Pass (TX Unit)
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Maximum conducted output power (Antenna A+B) (MIMO)						
Channel	Frequency (MHz)	Result (dBm) Output A + B	Antenna Gain (dBi)	Beamforming Gain (dB)	Output Power (dBm)	Output Power (Watt)
Low	2412	12.253	2	3	17.253	0.053125
Middle	2437	12.211			17.211	0.052614
High	2462	12.204			17.204	0.052529

Results of WiFi Tx Mode 802.11 n40, (2422MHz to 2452MHz) : Pass (TX Unit) Maximum conducted output power (Antenna A+B) (MIMO)						
Channel	Frequency (MHz)	Result (dBm) Output A + B	Antenna Gain (dBi)	Beamforming Gain (dB)	Output Power (dBm)	Output Power (Watt)
Low	2422	11.368	2	3	16.368	0.043331
Middle	2437	11.352			16.352	0.043172
High	2452	11.364			16.364	0.043291

Beamforming Gain = $10 \log(N_{\text{ANT}})$ dB,
Directional gain=5 dBi=Antenna Gain+Beamforming Gain
where N_{ANT} = number of transmit antennas.

Calculated measurement uncertainty : 30MHz to 1GHz 1.7dB
1GHz to 26GHz 1.7dB

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3.1.2 Radiated Emissions

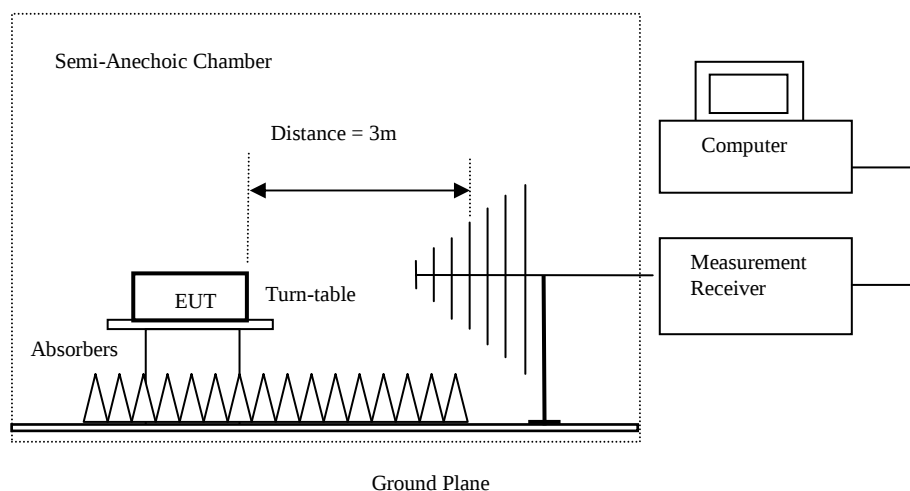
Test Requirement:	FCC 47CFR 15.209
Test Method:	ANSI C63.4:2009
Test Date:	2015-05-11
Mode of Operation:	Tx mode / WiFi mode

Test Method:

The sample was placed 0.8m above the ground plane of semi-anechoic Chamber*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

* Semi-anechoic chamber located on the G/F of “STC (Dongguan) Company Limited” with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 629686.

Test Setup:



Absorbers placed on top of the ground plane are for measurements above 1000MHz only.

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Limits for Radiated Emissions [FCC 47 CFR 15.247 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of Tx mode (2412.0 MHz) (802.11b) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2412.0 MHz) (802.11b) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions						
Quasi-Peak Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2412.0 MHz) (802.11b) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
4824.0	14.5	41.5	56.0	74.0	18.0	Vertical
4824.0	13.8	42.4	56.2	74.0	17.8	Horizontal
7236.0	10.1	45.1	55.2	74.0	18.8	Vertical
7236.0	9.2	46.2	55.4	74.0	18.6	Horizontal
9648.0	7.1	48	55.1	74.0	18.9	Vertical
9648.0	5.6	48.8	54.4	74.0	19.6	Horizontal
12060.0	4.0	51.5	55.5	74.0	18.5	Vertical
12060.0	2.4	52.4	54.8	74.0	19.2	Horizontal

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Result of Tx mode (2412.0 MHz) (802.11b) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
MHz	Level @3m	Factor	Strength	@3m		Polarity
	dBuV	dB/m	dBuV/m	dBuV/m	dBuV/m	
4824.0	2.8	41.5	44.3	54.0	9.7	Vertical
4824.0	-0.3	42.4	42.1	54.0	11.9	Horizontal
7236.0	-2.6	45.1	42.5	54.0	11.5	Vertical
7236.0	-4.6	46.2	41.6	54.0	12.4	Horizontal
9648.0	-6.0	48	42.0	54.0	12.0	Vertical
9648.0	-7.2	48.8	41.6	54.0	12.4	Horizontal
12060.0	-10.4	51.5	41.1	54.0	12.9	Vertical
12060.0	-10.1	52.4	42.3	54.0	11.7	Horizontal

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Result of Tx mode (2437.0 MHz) (802.11b) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2437.0 MHz) (802.11b) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions						
Quasi-Peak Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2437.0 MHz) (802.11b) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
4874.0	14.7	41.6	56.3	74.0	17.7	Vertical
4874.0	13.6	42.5	56.1	74.0	17.9	Horizontal
7311.0	10.1	45.2	55.3	74.0	18.7	Vertical
7311.0	9.3	46.3	55.6	74.0	18.4	Horizontal
9748.0	7.0	48.1	55.1	74.0	18.9	Vertical
9748.0	7.4	48.9	56.3	74.0	17.7	Horizontal
12185.0	3.9	51.6	55.5	74.0	18.5	Vertical
12185.0	2.5	52.5	55.0	74.0	19.0	Horizontal

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Result of Tx mode (2437.0 MHz) (802.11b) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
MHz	Level @3m	Factor	Strength	@3m		Polarity
	dBuV	dB/m	dBuV/m	dBuV/m	dBuV/m	
4874.0	0.9	41.6	42.5	54.0	11.5	Vertical
4874.0	0.4	42.5	42.9	54.0	11.1	Horizontal
7311.0	-2.8	45.2	42.4	54.0	11.6	Vertical
7311.0	-4.2	46.3	42.1	54.0	11.9	Horizontal
9748.0	-6.3	48.1	41.8	54.0	12.2	Vertical
9748.0	-6.9	48.9	42.0	54.0	12.0	Horizontal
12185.0	-10.2	51.6	41.4	54.0	12.6	Vertical
12185.0	-9.9	52.5	42.6	54.0	11.4	Horizontal

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Result of Tx mode (2462.0 MHz) (802.11b) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2462.0 MHz) (802.11b) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions						
Quasi-Peak Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2462.0 MHz) (802.11b) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
4924.0	15.2	41.4	56.6	74.0	17.4	Vertical
4924.0	12.6	42.7	55.3	74.0	18.7	Horizontal
7386.0	8.6	45.6	54.2	74.0	19.8	Vertical
7386.0	7.9	46.5	54.4	74.0	19.6	Horizontal
9848.0	6.4	48.6	55.0	74.0	19.0	Vertical
9848.0	4.5	49.7	54.2	74.0	19.8	Horizontal
12310.0	3.6	51.7	55.3	74.0	18.7	Vertical
12310.0	2.8	52.7	55.5	74.0	18.5	Horizontal

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Result of Tx mode (2462.0 MHz) (802.11b) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
MHz	Level @3m	Factor	Strength	@3m		Polarity
	dBuV	dB/m	dBuV/m	dBuV/m	dBuV/m	
4924.0	0.7	41.4	42.1	54.0	11.9	Vertical
4924.0	-0.1	42.7	42.6	54.0	11.4	Horizontal
7386.0	-4.3	45.6	41.3	54.0	12.7	Vertical
7386.0	-5.5	46.5	41.0	54.0	13.0	Horizontal
9848.0	-6.2	48.6	42.4	54.0	11.6	Vertical
9848.0	-8.4	49.7	41.3	54.0	12.7	Horizontal
12310.0	-10.6	51.7	41.1	54.0	12.9	Vertical
12310.0	-11.7	52.7	41.0	54.0	13.0	Horizontal

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Result of Tx mode (2412.0 MHz) (802.11g) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2412.0 MHz) (802.11g) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions						
Quasi-Peak Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2412.0 MHz) (802.11g) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @ 3m	Factor	Strength	@ 3m		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
4824.0	14.9	41.5	56.4	74.0	17.6	Vertical
4824.0	12.7	42.4	55.1	74.0	18.9	Horizontal
7236.0	10.8	45.1	55.9	74.0	18.1	Vertical
7236.0	8.1	46.2	54.3	74.0	19.7	Horizontal
9648.0	7.9	48	55.9	74.0	18.1	Vertical
9648.0	5.5	48.8	54.3	74.0	19.7	Horizontal
12060.0	3.9	51.5	55.4	74.0	18.6	Vertical
12060.0	3.2	52.4	55.6	74.0	18.4	Horizontal

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Result of Tx mode (2412.0 MHz) (802.11g) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
MHz	Level @3m	Factor	Strength	@3m		Polarity
	dBuV	dB/m	dBuV/m	dBuV/m	dBuV/m	
4824.0	1.0	41.5	42.5	54.0	11.5	Vertical
4824.0	-10.0	42.4	32.4	54.0	21.6	Horizontal
7236.0	-3.1	45.1	42.0	54.0	12.0	Vertical
7236.0	-3.4	46.2	42.8	54.0	11.2	Horizontal
9648.0	-6.8	48	41.2	54.0	12.8	Vertical
9648.0	-7.3	48.8	41.5	54.0	12.5	Horizontal
12060.0	-9.5	51.5	42.0	54.0	12.0	Vertical
12060.0	-9.9	52.4	42.5	54.0	11.5	Horizontal

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Result of Tx mode (2437.0 MHz) (802.11g) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dB μ V	dB/m	dB μ V/m	dB μ V/m	dB μ V/m	
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2437.0 MHz) (802.11g) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions						
Quasi-Peak Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dB μ V	dB/m	dB μ V/m	dB μ V/m	dB μ V/m	
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2437.0 MHz) (802.11g) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dB μ V	dB/m	dB μ V/m	dB μ V/m	dB μ V/m	
4874.0	14.0	41.6	55.6	74.0	18.4	Vertical
4874.0	13.3	42.5	55.8	74.0	18.2	Horizontal
7311.0	9.8	45.2	55.0	74.0	19.0	Vertical
7311.0	9.4	46.3	55.7	74.0	18.3	Horizontal
9748.0	7.1	48.1	55.2	74.0	18.8	Vertical
9748.0	6.5	48.9	55.4	74.0	18.6	Horizontal
12185.0	4.1	51.6	55.7	74.0	18.3	Vertical
12185.0	3.7	52.5	56.2	74.0	17.8	Horizontal

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Result of Tx mode (2437.0 MHz) (802.11g) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
MHz	Level @3m	Factor	Strength	@3m		Polarity
	dBuV	dB/m	dBuV/m	dBuV/m	dBuV/m	
4874.0	-0.4	41.6	41.2	54.0	12.8	Vertical
4874.0	-0.9	42.5	41.6	54.0	12.4	Horizontal
7311.0	-2.9	45.2	42.3	54.0	11.7	Vertical
7311.0	-5.2	46.3	41.1	54.0	12.9	Horizontal
9748.0	-6.4	48.1	41.7	54.0	12.3	Vertical
9748.0	-6.9	48.9	42.0	54.0	12.0	Horizontal
12185.0	-10.2	51.6	41.4	54.0	12.6	Vertical
12185.0	-9.6	52.5	42.9	54.0	11.1	Horizontal

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Result of Tx mode (2462.0 MHz) (802.11g) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2462.0 MHz) (802.11g) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions						
Quasi-Peak Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2462.0 MHz) (802.11g) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
4924.0	15.3	41.4	56.7	74.0	17.3	Vertical
4924.0	12.8	42.7	55.5	74.0	18.5	Horizontal
7386.0	9.2	45.6	54.8	74.0	19.2	Vertical
7386.0	8.0	46.5	54.5	74.0	19.5	Horizontal
9848.0	7.4	48.6	56.0	74.0	18.0	Vertical
9848.0	5.4	49.7	55.1	74.0	18.9	Horizontal
12310.0	4.2	51.7	55.9	74.0	18.1	Vertical
12310.0	2.9	52.7	55.6	74.0	18.4	Horizontal

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Result of Tx mode (2462.0 MHz) (802.11g) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
MHz	Level @3m	Factor	Strength	@3m		Polarity
	dBuV	dB/m	dBuV/m	dBuV/m	dBuV/m	
4924.0	0.6	41.4	42.0	54.0	12.0	Vertical
4924.0	-0.3	42.7	42.4	54.0	11.6	Horizontal
7386.0	-4.4	45.6	41.2	54.0	12.8	Vertical
7386.0	-5.5	46.5	41.0	54.0	13.0	Horizontal
9848.0	-6.1	48.6	42.5	54.0	11.5	Vertical
9848.0	-8.1	49.7	41.6	54.0	12.4	Horizontal
12310.0	-9.5	51.7	42.2	54.0	11.8	Vertical
12310.0	-11.4	52.7	41.3	54.0	12.7	Horizontal

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Result of Tx mode (2412.0 MHz) (802.11n20) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2412.0 MHz) (802.11n20) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions						
Quasi-Peak Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2412.0 MHz) (802.11n20) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @ 3m	Factor	Strength	@ 3m		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
4824.0	14.8	41.5	56.3	74.0	17.7	Vertical
4824.0	13.4	42.4	55.8	74.0	18.2	Horizontal
7236.0	10.0	45.1	55.1	74.0	18.9	Vertical
7236.0	8.8	46.2	55.0	74.0	19.0	Horizontal
9648.0	7.7	48	55.7	74.0	18.3	Vertical
9648.0	5.4	48.8	54.2	74.0	19.8	Horizontal
12060.0	5.3	51.5	56.8	74.0	17.2	Vertical
12060.0	3.5	52.4	55.9	74.0	18.1	Horizontal

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Result of Tx mode (2412.0 MHz) (802.11n20) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
MHz	Level @3m	Factor	Strength	@3m		Polarity
	dBuV	dB/m	dBuV/m	dBuV/m	dBuV/m	
4824.0	-0.2	41.5	41.3	54.0	12.7	Vertical
4824.0	-0.1	42.4	42.3	54.0	11.7	Horizontal
7236.0	-2.8	45.1	42.3	54.0	11.7	Vertical
7236.0	-4.3	46.2	41.9	54.0	12.1	Horizontal
9648.0	-6.4	48	41.6	54.0	12.4	Vertical
9648.0	-7.8	48.8	41.0	54.0	13.0	Horizontal
12060.0	-9.4	51.5	42.1	54.0	11.9	Vertical
12060.0	-10.0	52.4	42.4	54.0	11.6	Horizontal

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Result of Tx mode (2437.0 MHz) (802.11n20) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2437.0 MHz) (802.11n20) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions						
Quasi-Peak Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2437.0 MHz) (802.11n20) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
4874.0	14.0	41.6	55.6	74.0	18.4	Vertical
4874.0	14.0	42.5	56.5	74.0	17.5	Horizontal
7311.0	10.6	45.2	55.8	74.0	18.2	Vertical
7311.0	8.9	46.3	55.2	74.0	18.8	Horizontal
9748.0	8.4	48.1	56.5	74.0	17.5	Vertical
9748.0	7.3	48.9	56.2	74.0	17.8	Horizontal
12185.0	3.7	51.6	55.3	74.0	18.7	Vertical
12185.0	4.2	52.5	56.7	74.0	17.3	Horizontal

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Result of Tx mode (2437.0 MHz) (802.11n20) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
MHz	Level @3m	Factor	Strength	@3m		Polarity
	dBuV	dB/m	dBuV/m	dBuV/m	dBuV/m	
4874.0	-1.2	41.6	40.4	54.0	13.6	Vertical
4874.0	-0.5	42.5	42.0	54.0	12.0	Horizontal
7311.0	-3.7	45.2	41.5	54.0	12.5	Vertical
7311.0	-4.2	46.3	42.1	54.0	11.9	Horizontal
9748.0	-6.0	48.1	42.1	54.0	11.9	Vertical
9748.0	-6.5	48.9	42.4	54.0	11.6	Horizontal
12185.0	-10.6	51.6	41.0	54.0	13.0	Vertical
12185.0	-11.3	52.5	41.2	54.0	12.8	Horizontal

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Result of Tx mode (2462.0 MHz) (802.11n20) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2462.0 MHz) (802.11n20) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions						
Quasi-Peak Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2462.0 MHz) (802.11n20) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
4924.0	14.7	41.4	56.1	74.0	17.9	Vertical
4924.0	12.8	42.7	55.5	74.0	18.5	Horizontal
7386.0	9.2	45.6	54.8	74.0	19.2	Vertical
7386.0	8.6	46.5	55.1	74.0	18.9	Horizontal
9848.0	6.7	48.6	55.3	74.0	18.7	Vertical
9848.0	4.5	49.7	54.2	74.0	19.8	Horizontal
12310.0	3.8	51.7	55.5	74.0	18.5	Vertical
12310.0	3.2	52.7	55.9	74.0	18.1	Horizontal

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Result of Tx mode (2462.0 MHz) (802.11n20) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
MHz	Level @3m	Factor	Strength	@3m		Polarity
	dBuV	dB/m	dBuV/m	dBuV/m	dBuV/m	
4924.0	1.9	41.4	43.3	54.0	10.7	Vertical
4924.0	-0.7	42.7	42.0	54.0	12.0	Horizontal
7386.0	-4.2	45.6	41.4	54.0	12.6	Vertical
7386.0	-4.9	46.5	41.6	54.0	12.4	Horizontal
9848.0	-6.1	48.6	42.5	54.0	11.5	Vertical
9848.0	-7.9	49.7	41.8	54.0	12.2	Horizontal
12310.0	-10.5	51.7	41.2	54.0	12.8	Vertical
12310.0	-11.3	52.7	41.4	54.0	12.6	Horizontal

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Result of Tx mode (2422.0 MHz) (802.11n40) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2422.0 MHz) (802.11n40) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions						
Quasi-Peak Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2422.0 MHz) (802.11n40) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @ 3m	Factor	Strength	@ 3m		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
4844.0	14.3	41.5	55.8	74.0	18.2	Vertical
4844.0	13.0	42.4	55.4	74.0	18.6	Horizontal
7266.0	10.5	45.1	55.6	74.0	18.4	Vertical
7266.0	8.8	46.2	55.0	74.0	19.0	Horizontal
9688.0	7.6	48	55.6	74.0	18.4	Vertical
9688.0	5.8	48.8	54.6	74.0	19.4	Horizontal
12110.0	4.3	51.5	55.8	74.0	18.2	Vertical
12110.0	2.6	52.4	55.0	74.0	19.0	Horizontal

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Result of Tx mode (2422.0 MHz) (802.11n40) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
MHz	Level @3m	Factor	Strength	@3m		Polarity
	dBuV	dB/m	dBuV/m	dBuV/m	dBuV/m	
4844.0	-1.7	41.5	39.8	54.0	14.2	Vertical
4844.0	-2.9	42.4	39.5	54.0	14.5	Horizontal
7266.0	-4.8	45.1	40.3	54.0	13.7	Vertical
7266.0	-5.5	46.2	40.7	54.0	13.3	Horizontal
9688.0	-6.5	48	41.5	54.0	12.5	Vertical
9688.0	-7.9	48.8	40.9	54.0	13.1	Horizontal
12110.0	-9.6	51.5	41.9	54.0	12.1	Vertical
12110.0	-11.1	52.4	41.3	54.0	12.7	Horizontal

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Result of Tx mode (2437.0 MHz) (802.11n40) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2437.0 MHz) (802.11n40) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions						
Quasi-Peak Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2437.0 MHz) (802.11n40) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
4874.0	13.8	41.6	55.4	74.0	18.6	Vertical
4874.0	12.5	42.5	55.0	74.0	19.0	Horizontal
7311.0	10.0	45.2	55.2	74.0	18.8	Vertical
7311.0	9.4	46.3	55.7	74.0	18.3	Horizontal
9748.0	7.5	48.1	55.6	74.0	18.4	Vertical
9748.0	7.8	48.9	56.7	74.0	17.3	Horizontal
12185.0	4.5	51.6	56.1	74.0	17.9	Vertical
12185.0	3.3	52.5	55.8	74.0	18.2	Horizontal

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Result of Tx mode (2437.0 MHz) (802.11n40) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
MHz	Level @3m	Factor	Strength	@3m		Polarity
	dBuV	dB/m	dBuV/m	dBuV/m	dBuV/m	
4874.0	-1.1	41.6	40.5	54.0	13.5	Vertical
4874.0	-0.9	42.5	41.6	54.0	12.4	Horizontal
7311.0	-4.8	45.2	40.4	54.0	13.6	Vertical
7311.0	-6.1	46.3	40.2	54.0	13.8	Horizontal
9748.0	-6.3	48.1	41.8	54.0	12.2	Vertical
9748.0	-6.4	48.9	42.5	54.0	11.5	Horizontal
12185.0	-10.4	51.6	41.2	54.0	12.8	Vertical
12185.0	-10.9	52.5	41.6	54.0	12.4	Horizontal

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Result of Tx mode (2452.0 MHz) (802.11n40) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions						
Average Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Results of Tx mode (2452.0 MHz) (802.11n40) (30MHz – 1000MHz): PASS

Field Strength of Spurious Emissions						
Quasi-Peak Value						
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (2452.0 MHz) (802.11n40) (Above 1GHz): Pass

Field Strength of Spurious Emissions						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
4904.0	14.1	41.4	55.5	74.0	18.5	Vertical
4904.0	12.5	42.7	55.2	74.0	18.8	Horizontal
7356.0	9.0	45.6	54.6	74.0	19.4	Vertical
7356.0	9.5	46.5	56.0	74.0	18.0	Horizontal
9808.0	7.6	48.6	56.2	74.0	17.8	Vertical
9808.0	4.8	49.7	54.5	74.0	19.5	Horizontal
12260.0	3.9	51.7	55.6	74.0	18.4	Vertical
12260.0	2.6	52.7	55.3	74.0	18.7	Horizontal

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Result of Tx mode (2452.0 MHz) (802.11n40) (Above 1GHz): Pass

Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

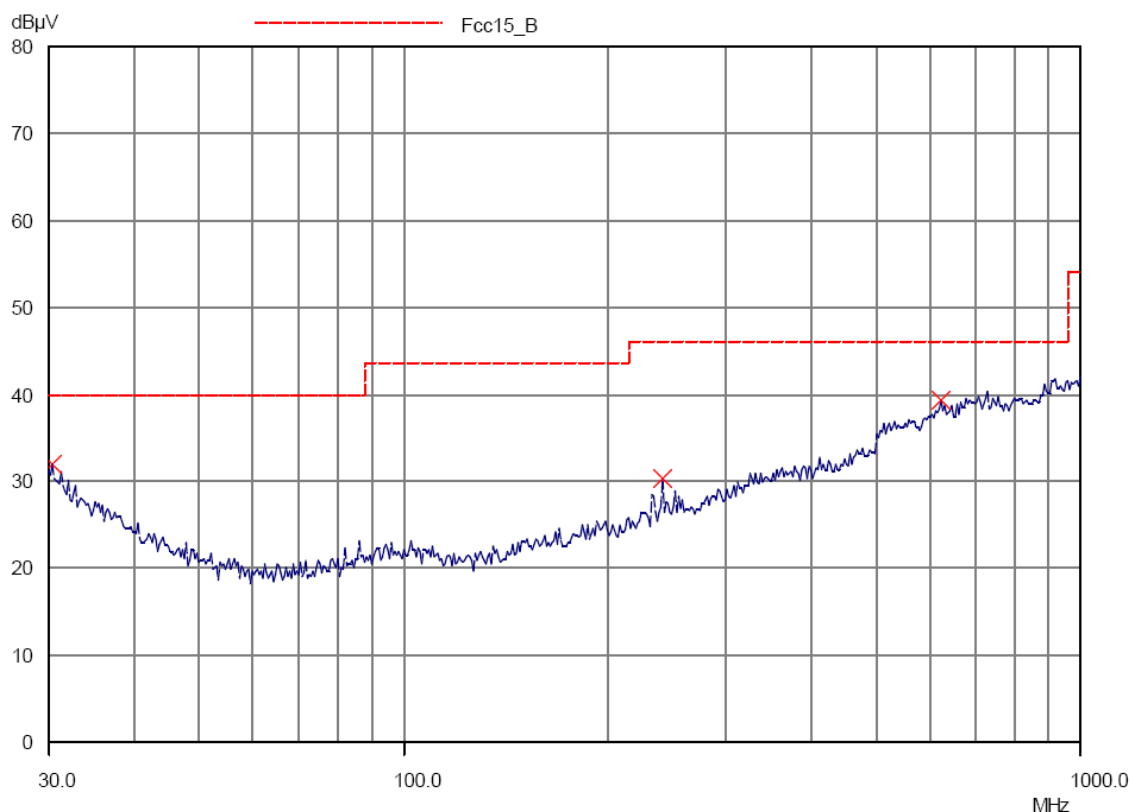
Frequency Range	Quasi-Peak Limits
[MHz]	[$\mu\text{V/m}$]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of WiFi mode (Connect to PC, PC mains) (30MHz – 1GHz): Pass

Please refer to the following table for result details

Horizontal



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Result of WiFi mode (Connect to PC, PC mains) (30MHz – 1GHz): Pass

Radiated Emissions					
Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @ 3m dB μ V/m	Limit @ 3m dB μ V/m	Level @ 3m dB μ V/m	Limit @ 3m dB μ V/m
30.2	Horizontal	30.9	40.0	35.1	100
240.0	Horizontal	30.3	46.0	32.7	200
620.6	Horizontal	36.8	46.0	69.2	200

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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

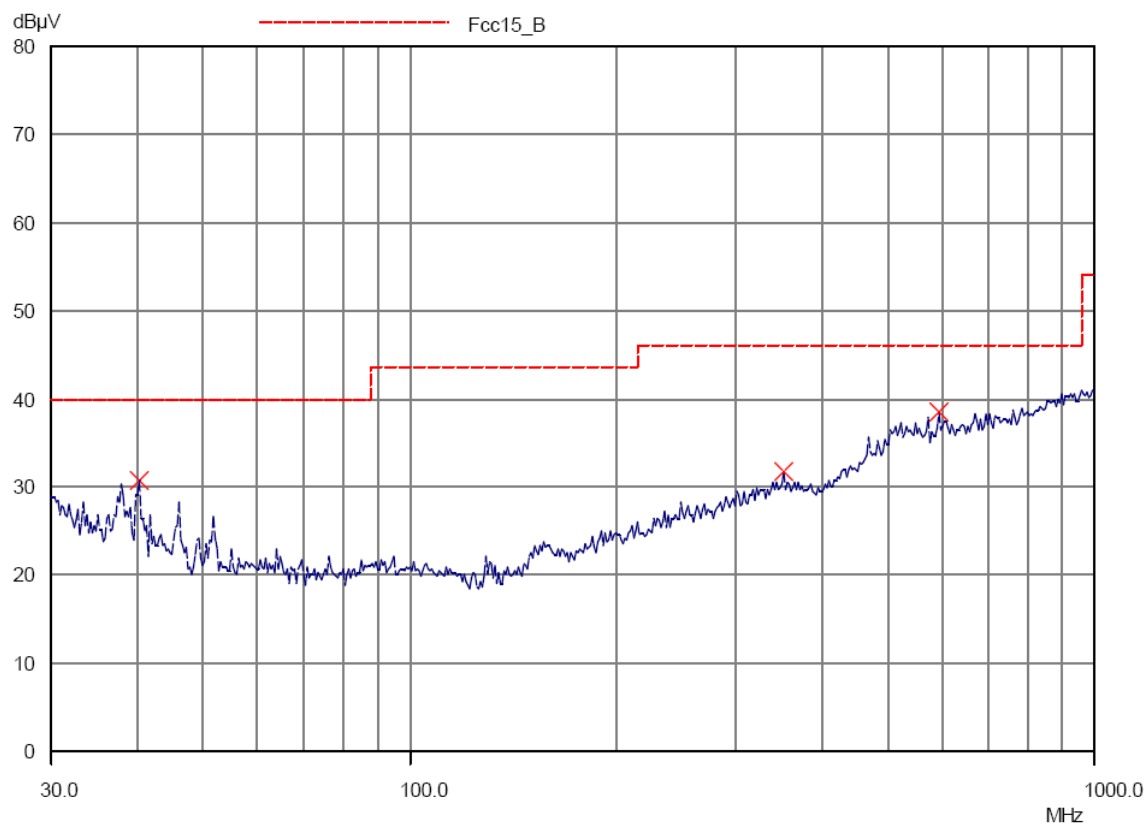
Frequency Range	Quasi-Peak Limits
[MHz]	[μ V/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of WiFi mode (Connect to PC, PC mains) (30MHz – 1GHz): Pass

Please refer to the following table for result details

Vertical



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Result of WiFi mode (Connect to PC, PC mains) (30MHz – 1GHz): Pass

Radiated Emissions					
Quasi-Peak					
Emission Frequency MHz	E-Field Polarity	Level @ 3m dB μ V/m	Limit @ 3m dB μ V/m	Level @ 3m dB μ V/m	Limit @ 3m dB μ V/m
40.3	Vertical	29.7	40.0	30.5	100
350.1	Vertical	31.7	46.0	38.5	200
591.7	Vertical	36.5	46.0	66.8	200

Remarks:

Calculated measurement uncertainty (30MHz – 1GHz): 4.6dB

Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

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3.1.3 Power Spectral Density

Test Requirement: FCC 47CFR 15.247(e)
Test Method: ANSI C63.4:2009
Test Date: 2015-05-10
Mode of Operation: WiFi mode

Test Method:

The RF output of the EUT was connected to the spectrum analyzer. Set the fundamental frequency as the center frequency of the spectral analyzer. Use RBW=3kHz , VBW= 10KHz , Set the span to 1.5 times the DTS channel bandwidth. Detector = peak, Sweep time = auto couple , Trace mode = max hold. Measure the Power Spectral Density (PSD) and record the results in dBm.

Test Setup:

As Test Setup of clause 3.1.1 in this test report.

Test Limit:

The maximum power spectral density (PSD) shall not exceeded 8dBm in any 3kHz band.

Results of WiFi Mode 802.11 b (Tx:2412MHz to 2462MHz) : Pass (TX Unit)

Maximum power spectral density (Antenna A)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2412.0	-11.05	8dBm
2437.0	-11.38	8dBm
2462.0	-11.85	8dBm

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Results of WiFi Mode 802.11 g (Tx:2412MHz to 2462MHz) : Pass (TX Unit)
Maximum power spectral density (Antenna A)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2412.0	-22.42	8dBm
2437.0	-22.27	8dBm
2462.0	-22.75	8dBm

Results of WiFi Mode 802.11 n20 (Tx:2412MHz to 2462MHz) : Pass (TX Unit)
Maximum power spectral density (Antenna A)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2412.0	-22.25	8dBm
2437.0	-21.97	8dBm
2462.0	-22.94	8dBm

Results of WiFi Mode 802.11 n40 (Tx:2422MHz to 2452MHz) : Pass (TX Unit)
Maximum power spectral density (Antenna A)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2422.0	-25.83	8dBm
2437.0	-26.38	8dBm
2452.0	-26.25	8dBm

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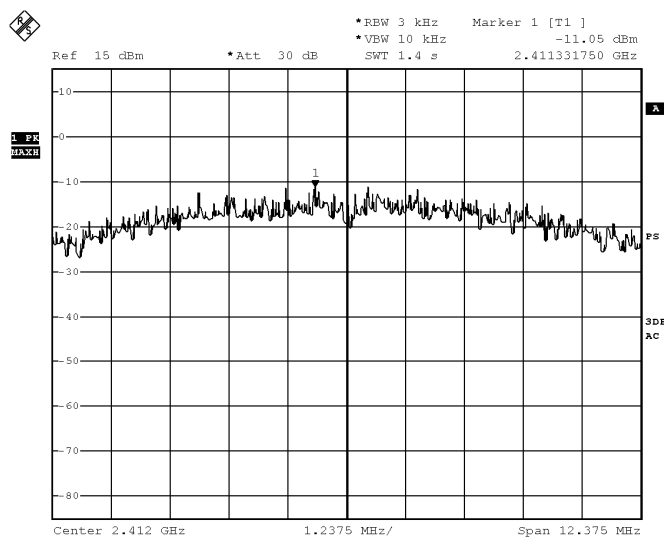


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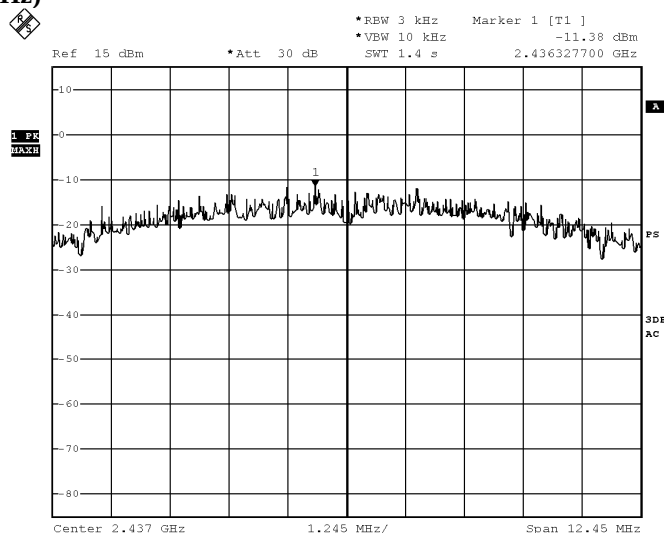
No.: DM119349



BMP

Date: 10.MAY.2015 16:47:56

CH 6 (2437.0 MHz)



BMP

Date: 10.MAY.2015 16:48:41

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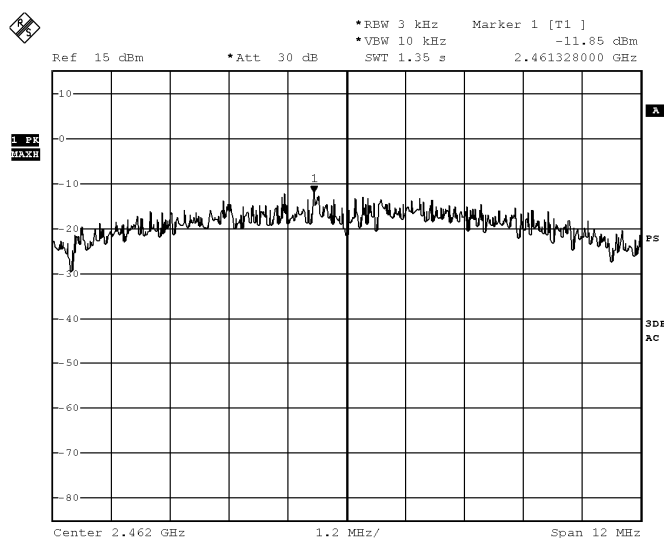
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CH 11 (2462.0 MHz)

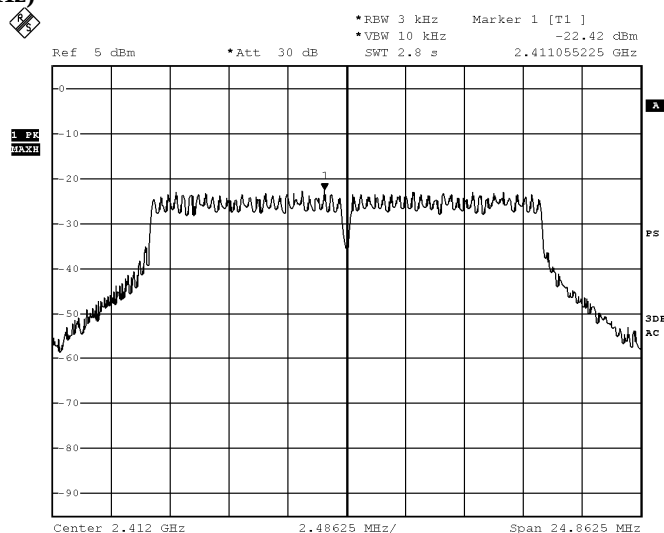


BMP

Date: 10.MAY.2015 16:49:28

WiFi mode 802.11 g, (Tx:2412MHz to 2462MHz) (Antenna A)

Ch 1 (2412.0 MHz)



BMP

Date: 10.MAY.2015 16:51:46

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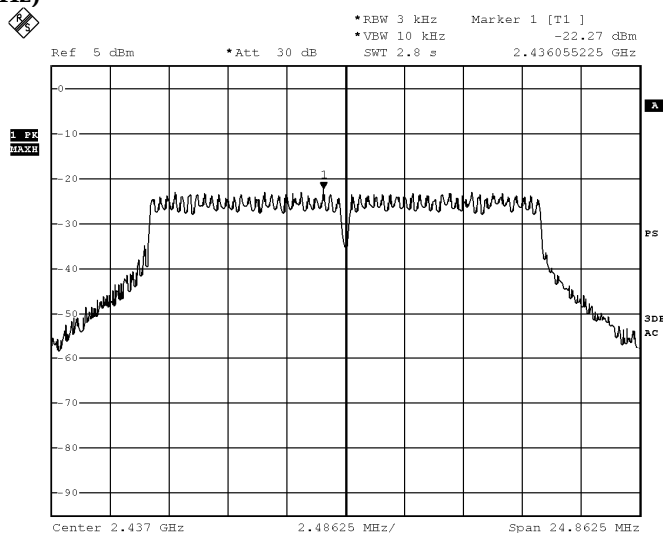
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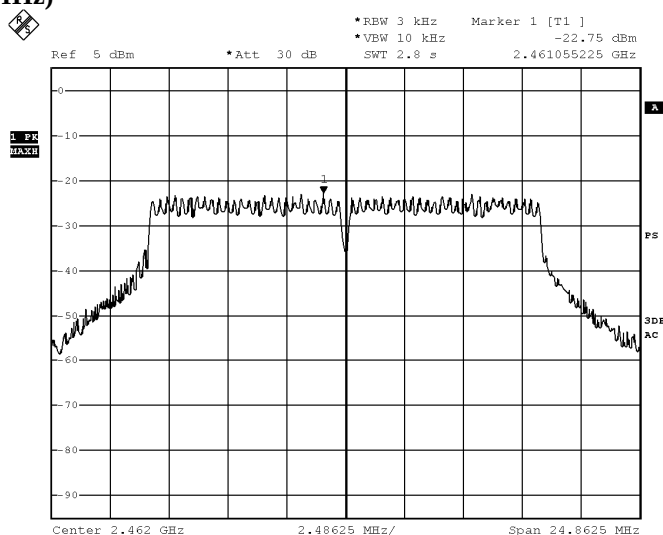
CH 6 (2437.0 MHz)



BMP

Date: 10.MAY.2015 16:51:08

CH 11 (2462.0 MHz)



BMP

Date: 10.MAY.2015 16:50:39

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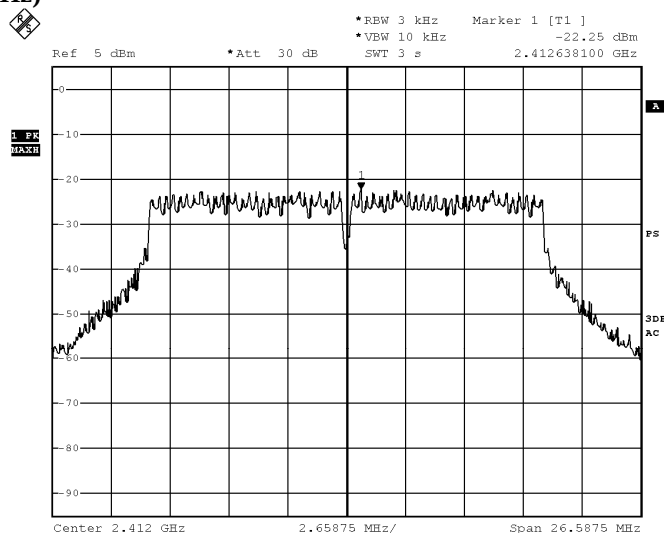
Date: 2015-05-13

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WiFi mode 802.11 n20, (Tx: 2412MHz to 2462MHz) (Antenna A)

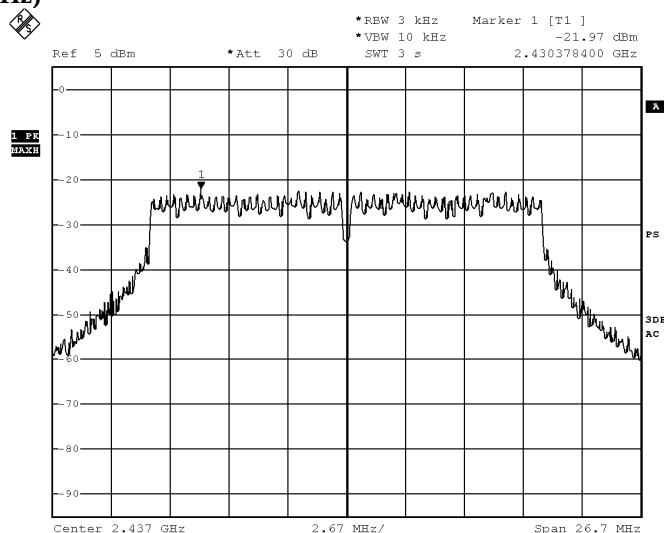
CH 1 (2412.0 MHz)



BMP

Date: 10.MAY.2015 16:52:23

CH 6 (2437.0 MHz)



BMP

Date: 10.MAY.2015 16:53:17

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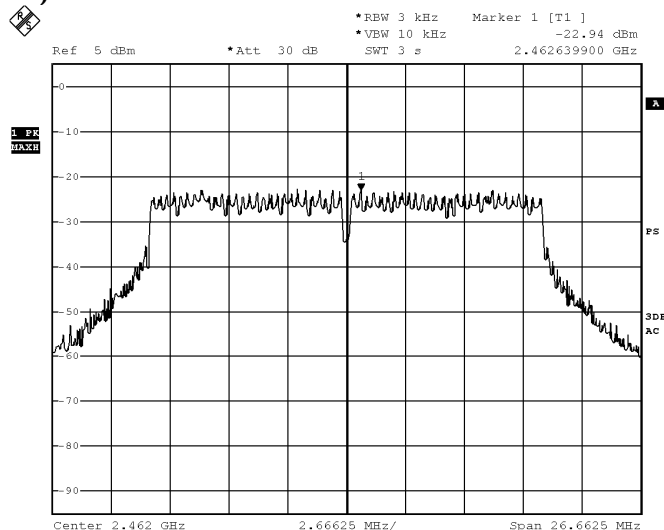
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Ch 11 (2462.0 MHz)

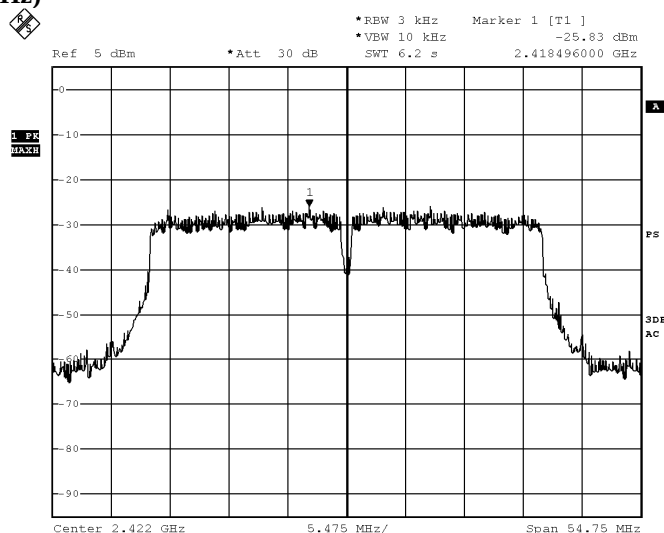


BMP

Date: 10.MAY.2015 16:54:03

WiFi mode 802.11 n40, (Tx: 2422MHz to 2452MHz) (Antenna A)

CH 1 (2422.0 MHz)



BMP

Date: 10.MAY.2015 16:55:40

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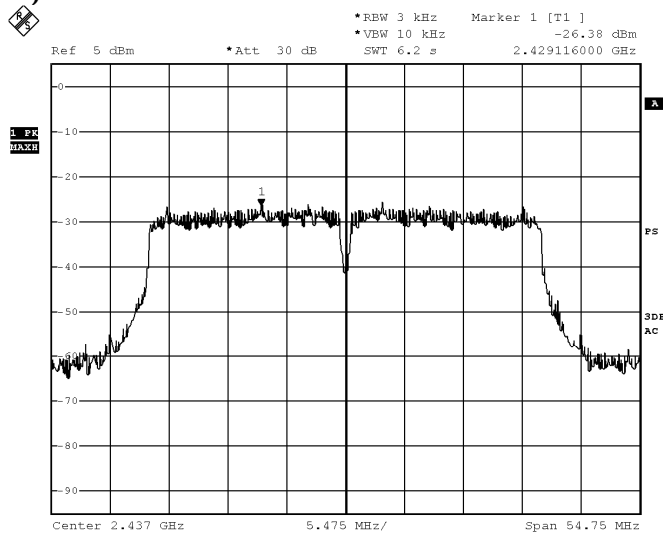
STC Test Report

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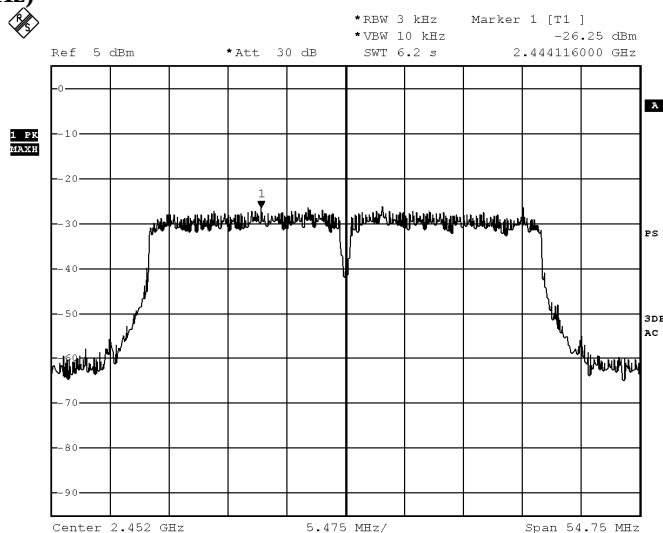
CH 6 (2437.0 MHz)



BMP

Date: 10.MAY.2015 16:57:14

Ch 9 (2452.0 MHz)



BMP

Date: 10.MAY.2015 16:58:31

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Results of WiFi Mode 802.11 b (Tx:2412MHz to 2462MHz) : Pass (TX Unit)

Maximum power spectral density (Antenna B)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2412.0	-9.38	8dBm
2437.0	-9.56	8dBm
2462.0	-9.45	8dBm

Results of WiFi Mode 802.11 g (Tx:2412MHz to 2462MHz) : Pass (TX Unit)

Maximum power spectral density (Antenna B)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2412.0	-20.67	8dBm
2437.0	-19.45	8dBm
2462.0	-19.30	8dBm

Results of WiFi Mode 802.11 n20 (Tx:2412MHz to 2462MHz) : Pass (TX Unit)

Maximum power spectral density (Antenna B)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2412.0	-19.65	8dBm
2437.0	-19.14	8dBm
2462.0	-19.37	8dBm

Results of WiFi Mode 802.11 n40 (Tx:2422MHz to 2452MHz) : Pass (TX Unit)

Maximum power spectral density (Antenna B)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2422.0	-23.68	8dBm
2437.0	-23.16	8dBm
2452.0	-24.21	8dBm

Results of WiFi Mode 802.11 n20 (Tx:2412MHz to 2462MHz) : Pass (TX Unit)

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Maximum power spectral density (MIMO Antenna A+B)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2412.0	-14.75	8dBm
2437.0	-14.32	8dBm
2462.0	-14.70	8dBm

Results of WiFi Mode 802.11 n40 (Tx:2422MHz to 2452MHz) : Pass (TX Unit)

Maximum power spectral density (MIMO Antenna A+B)

Transmitter Frequency (MHz)	Maximum Power spectral density level / 3kHz band (dBm)	Maximum Power spectral density / 3kHz band limit
2422.0	-18.61	8dBm
2437.0	-18.47	8dBm
2452.0	-18.85	8dBm

Note: The sum calculation=Antenna A+Antenna B +Beamforming(3dBi)
Result of Antenna A and Antenna B have included antenna gain(2dBi)

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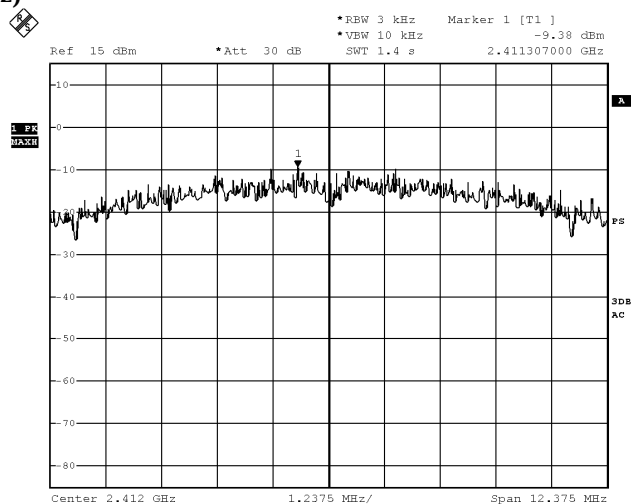
Date: 2015-05-13

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WiFi mode 802.11 b, (Tx: 2412MHz to 2462MHz) (Antenna B)

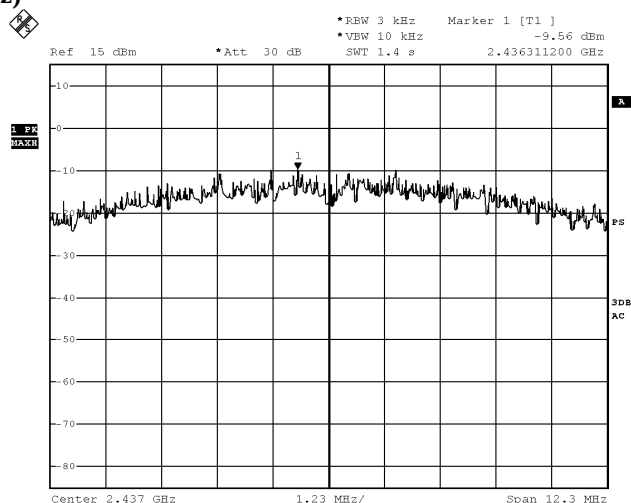
CH 1 (2412.0 MHz)



BMP

Date: 10.MAY.2015 16:33:05

CH 6 (2437.0 MHz)



BMP

Date: 10.MAY.2015 16:35:06

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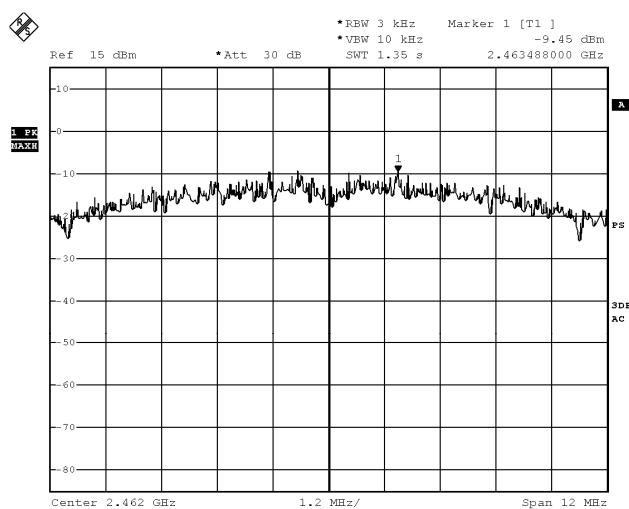
STC Test Report

Date: 2015-05-13

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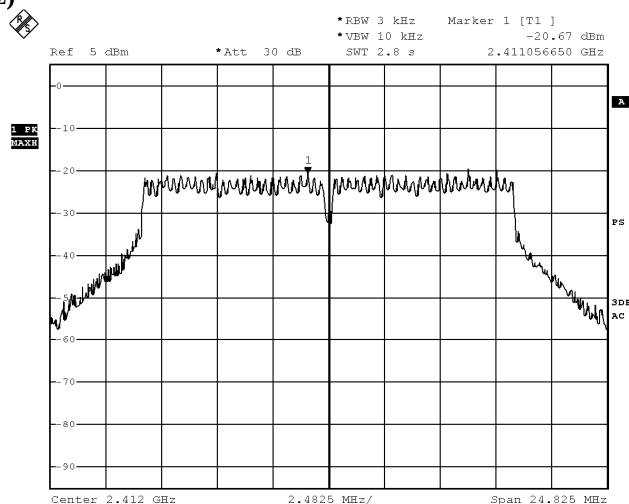
No.: DM119349

CH 11 (2462.0 MHz)



BMP
Date: 10.MAY.2015 16:36:08

WiFi mode 802.11 g, (Tx:2412MHz to 2462MHz) (Antenna A) Ch 1 (2412.0 MHz)



BMP
Date: 10.MAY.2015 16:37:37

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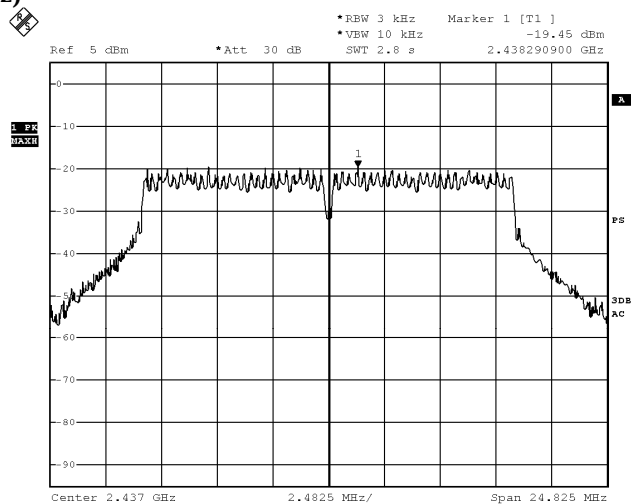
STC Test Report

Date: 2015-05-13

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No.: DM119349

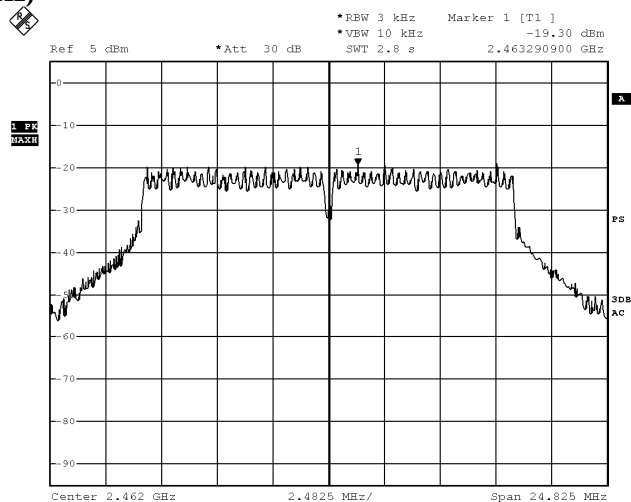
CH 6 (2437.0 MHz)



BMP

Date: 10.MAY.2015 16:38:26

CH 11 (2462.0 MHz)



BMP

Date: 10.MAY.2015 16:39:06

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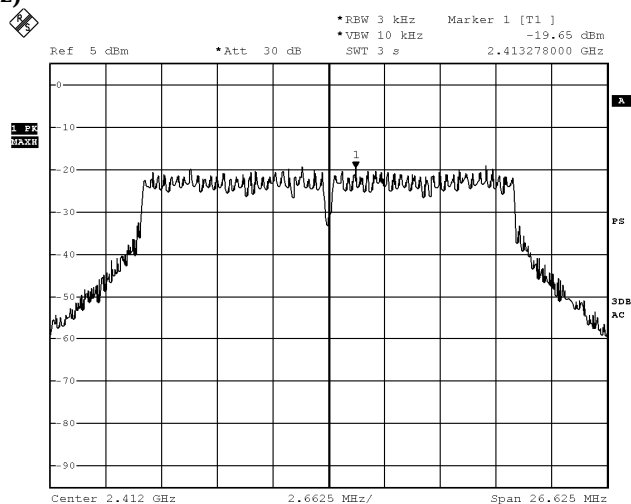
STC Test Report

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No.: DM119349

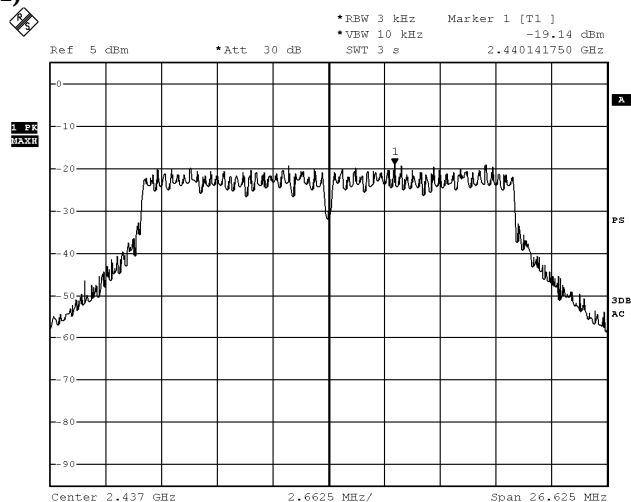
WiFi mode 802.11 n20, (Tx: 2412MHz to 2462MHz) (Antenna A)
CH 1 (2412.0 MHz)



BMP

Date: 10.MAY.2015 16:39:57

CH 6 (2437.0 MHz)



BMP

Date: 10.MAY.2015 16:41:02

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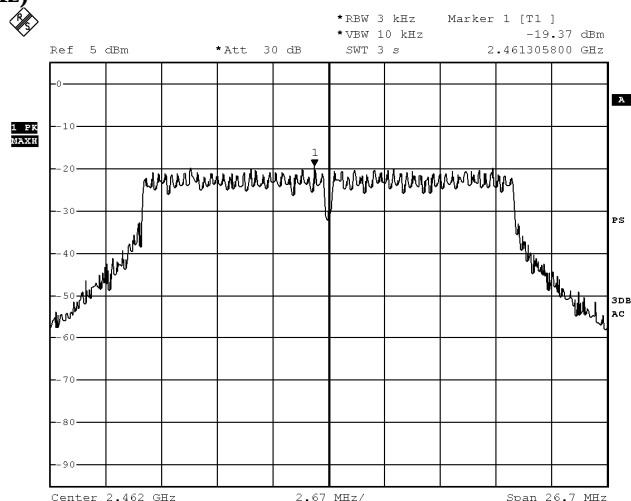
STC Test Report

Date: 2015-05-13

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Ch 11 (2462.0 MHz)

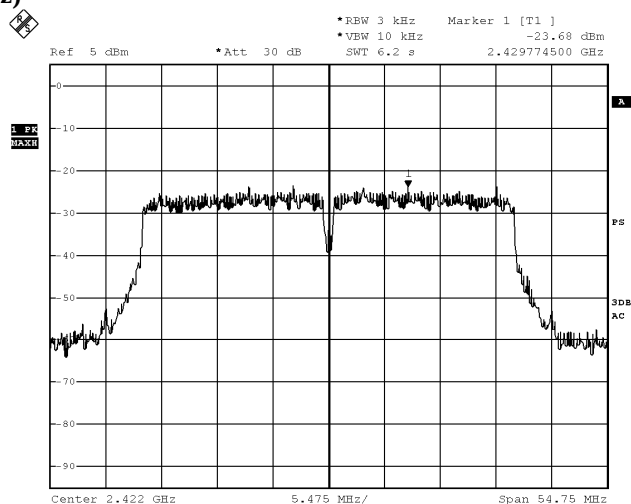


BMP

Date: 10.MAY.2015 16:41:44

WiFi mode 802.11 n40, (Tx: 2422MHz to 2452MHz) (Antenna A)

CH 1 (2422.0 MHz)



BMP

Date: 10.MAY.2015 16:43:07

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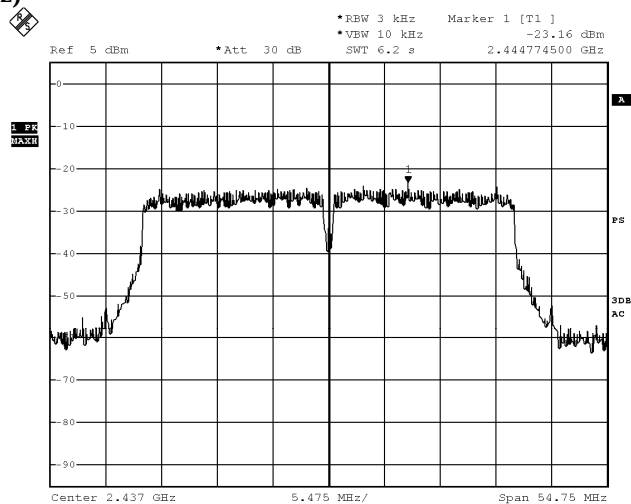
STC Test Report

Date: 2015-05-13

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No.: DM119349

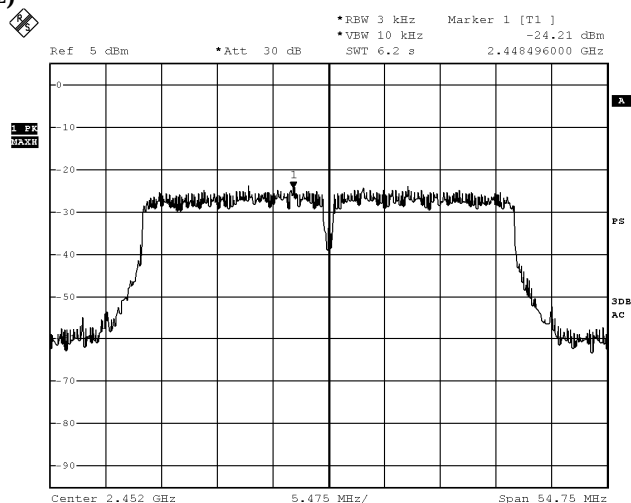
CH 6 (2437.0 MHz)



BMP

Date: 10.MAY.2015 16:44:05

Ch 9 (2452.0 MHz)



BMP

Date: 10.MAY.2015 16:45:16

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STC Test Report

Date: 2015-05-13

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No.: DM119349

3.1.4 6dB Spectrum Bandwidth Measurement

Test Requirement:	FCC 47CFR 15.247(a)(2)
Test Method:	ANSI C63.4:2009
Test Date:	2015-05-10
Mode of Operation:	WiFi mode

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

Test Setup:

As Test Setup of clause 3.1.1 in this test report.

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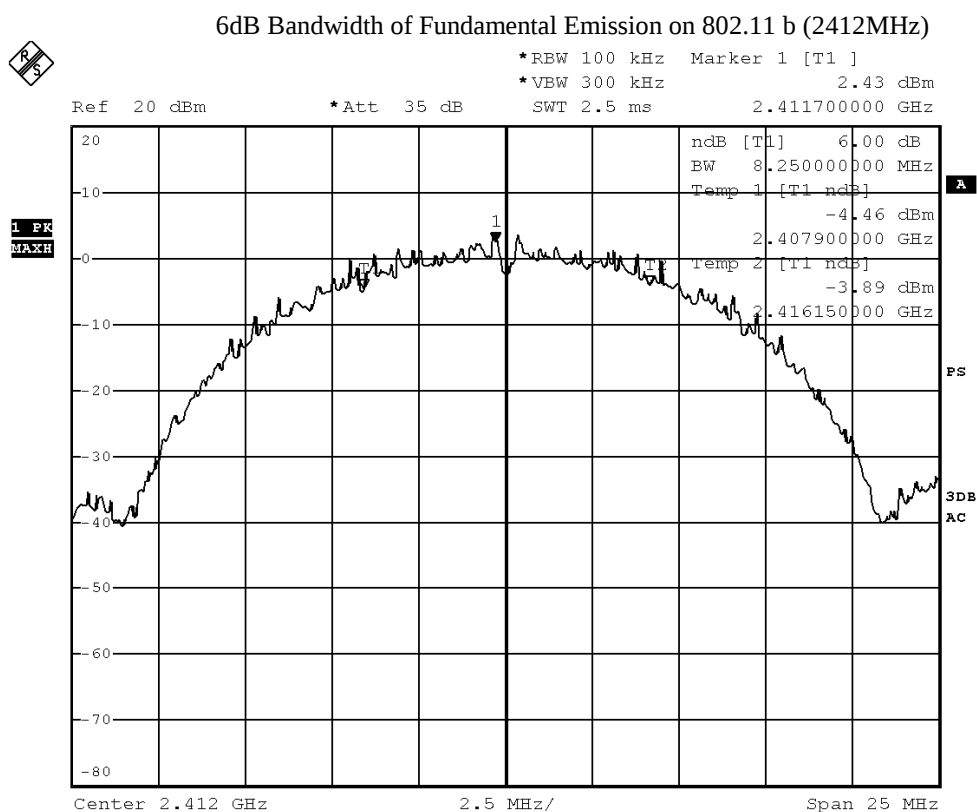
Date: 2015-05-13

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No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2412.0	8.25	> 500



BMP

Date: 10.MAY.2015 15:47:20

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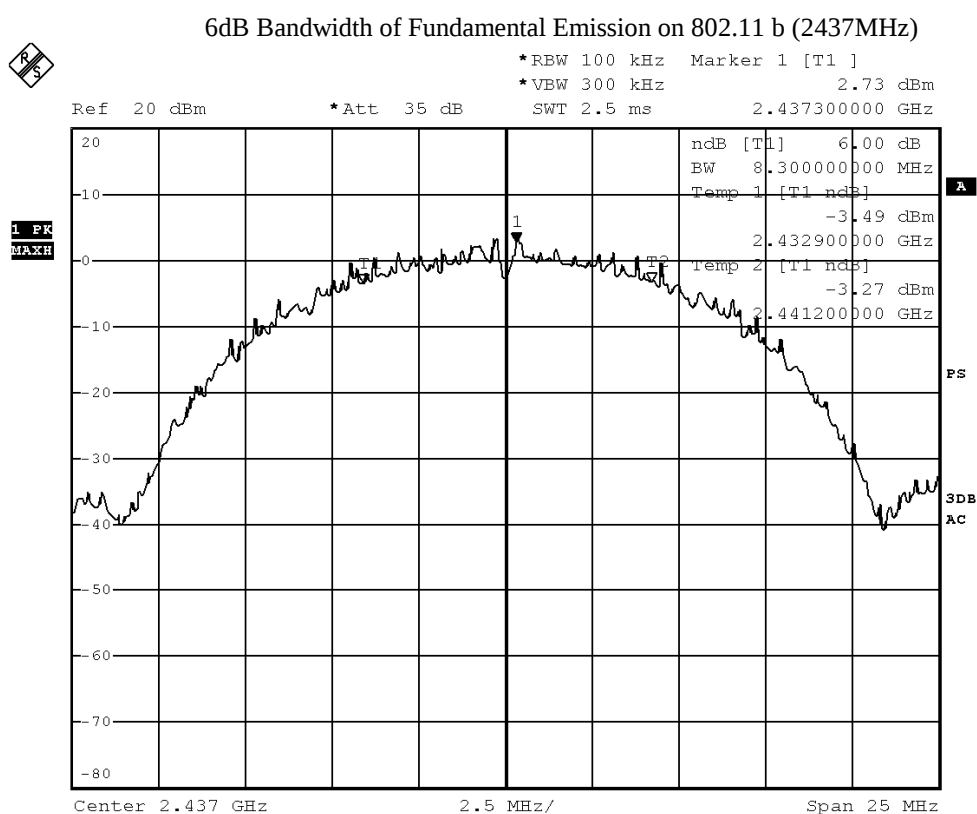
Date: 2015-05-13

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No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2437.0	8.30	> 500



BMP

Date: 10.MAY.2015 15:46:14

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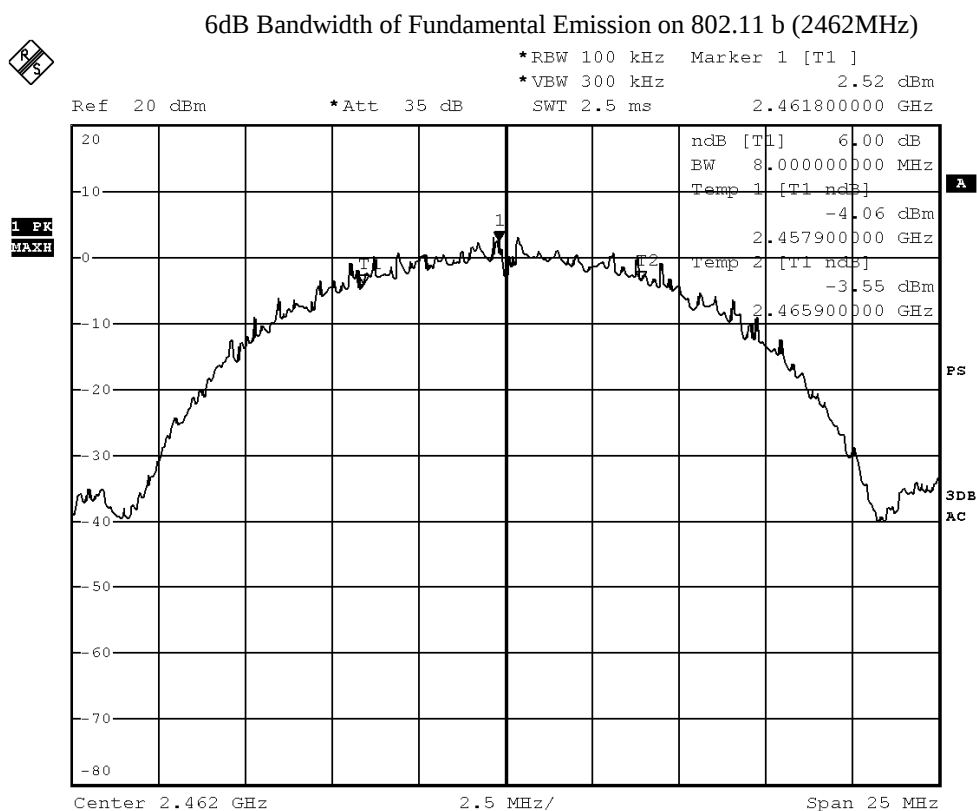
Date: 2015-05-13

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No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2462.0	8.00	> 500



BMP

Date: 10.MAY.2015 15:45:15

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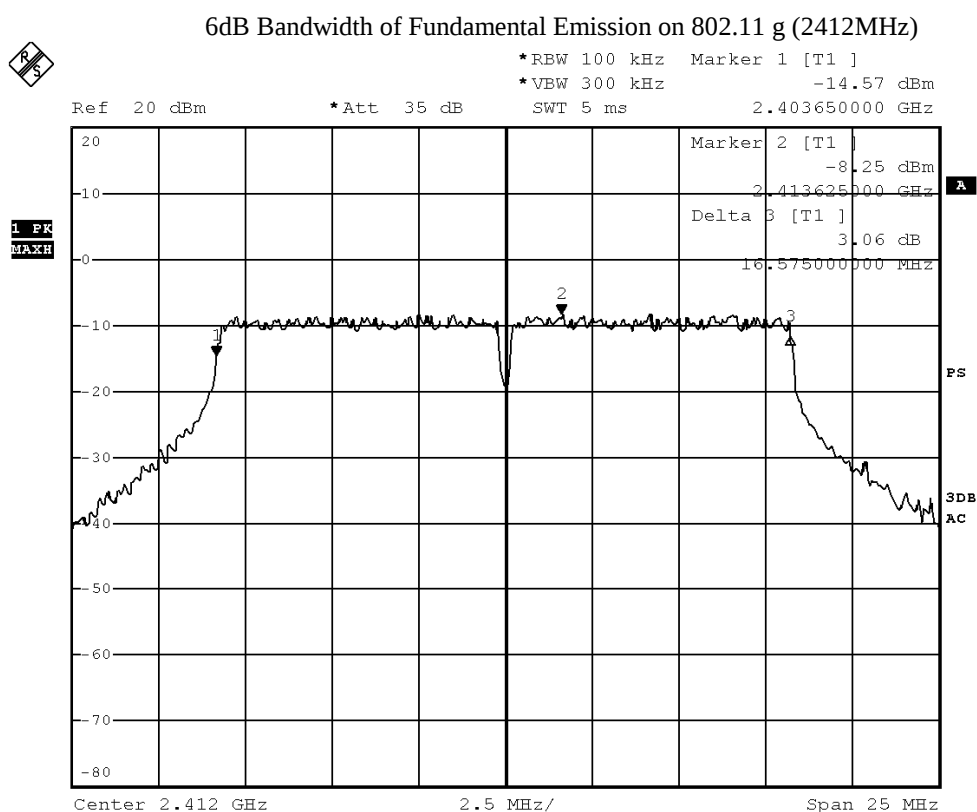
Date: 2015-05-13

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No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2412.0	16.575	> 500



BMP

Date: 10.MAY.2015 15:52:33

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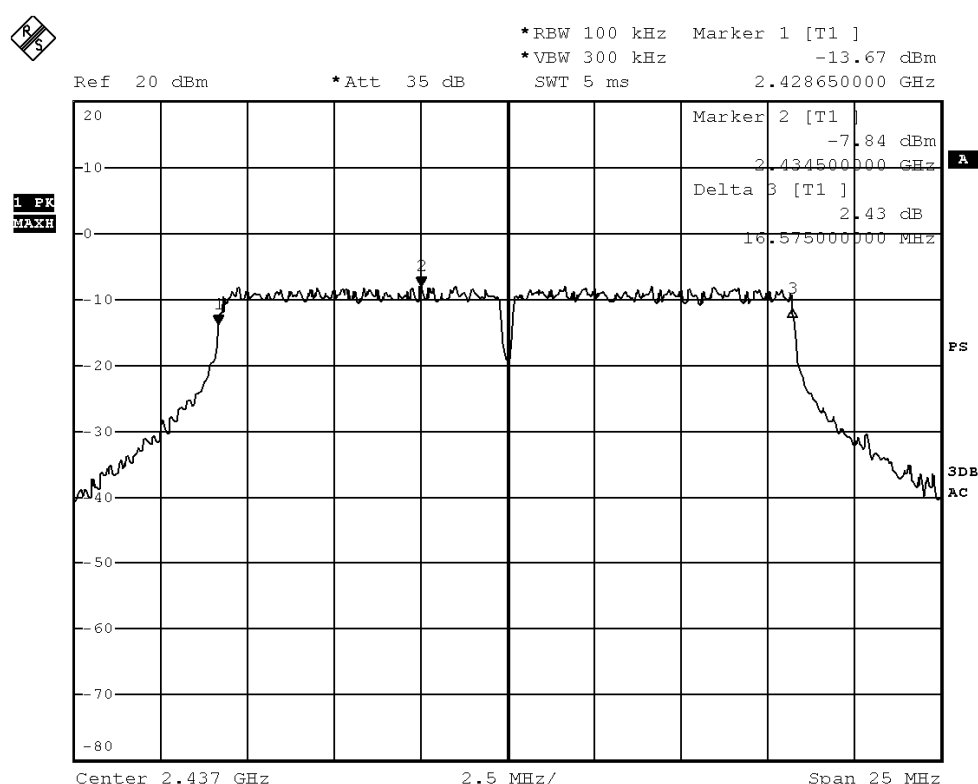
Page 59 of 107

No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2437.0	16.575	> 500

6dB Bandwidth of Fundamental Emission on 802.11 g (2437MHz)



BMP

Date: 10.MAY.2015 15:53:29

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Date: 2015-05-13

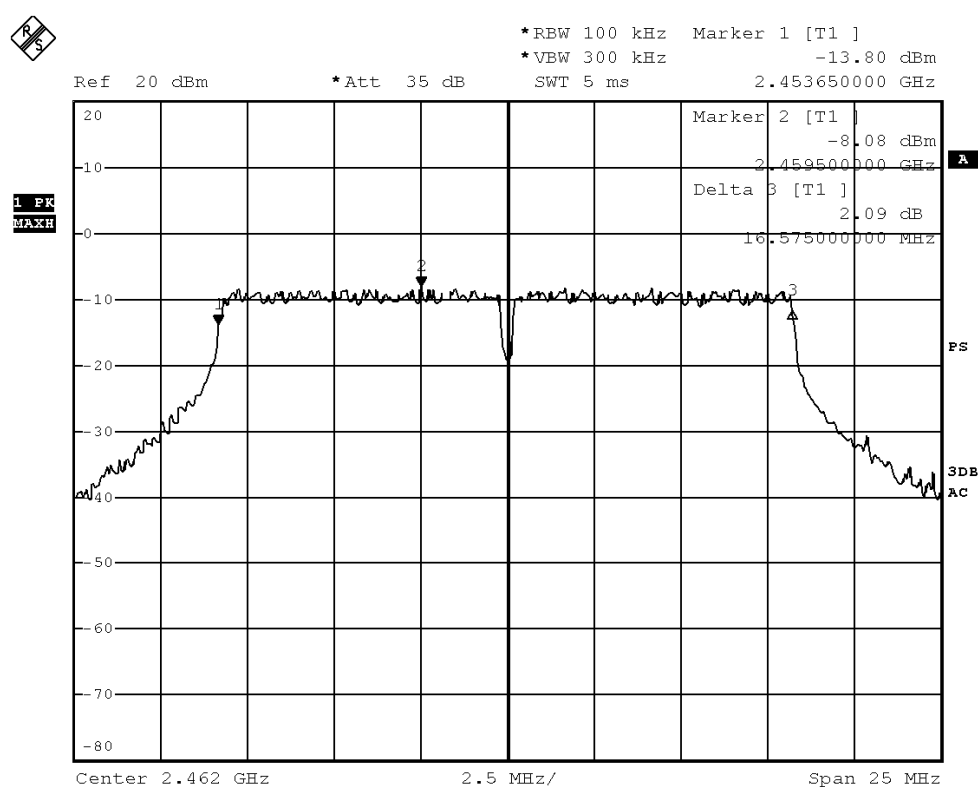
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No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2462.0	16.575	> 500

6dB Bandwidth of Fundamental Emission on 802.11 g (2462MHz)



BMP

Date: 10.MAY.2015 15:54:22

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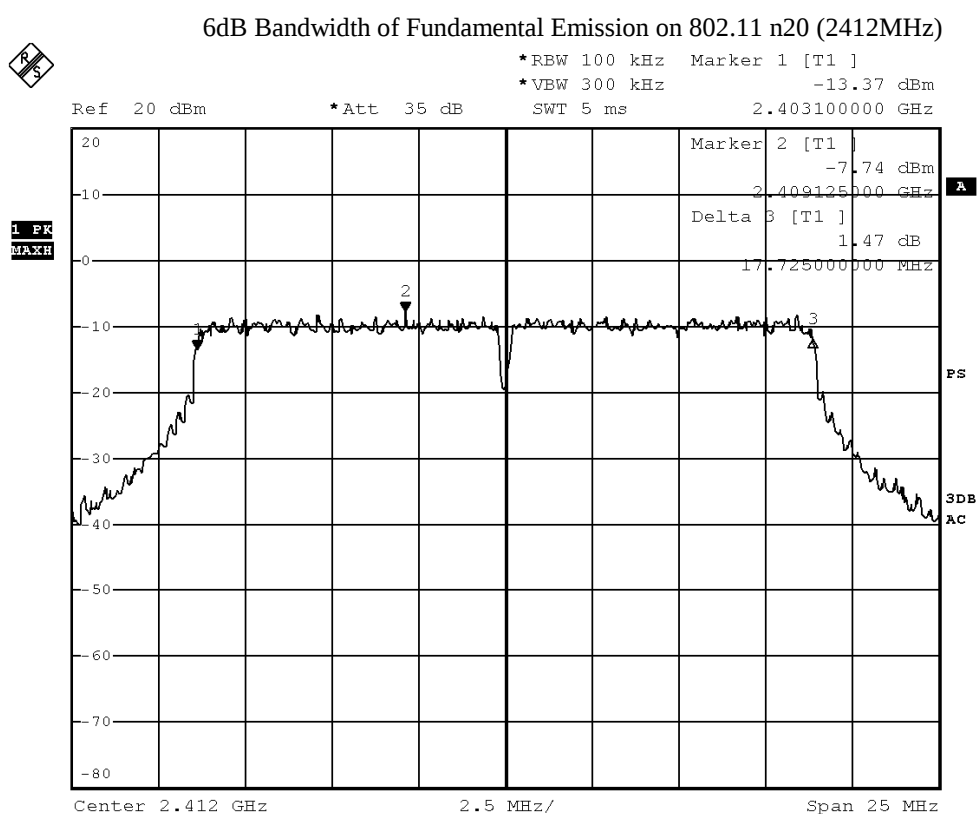
Date: 2015-05-13

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Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2412.0	17.725	> 500



BMP

Date: 10.MAY.2015 16:00:37

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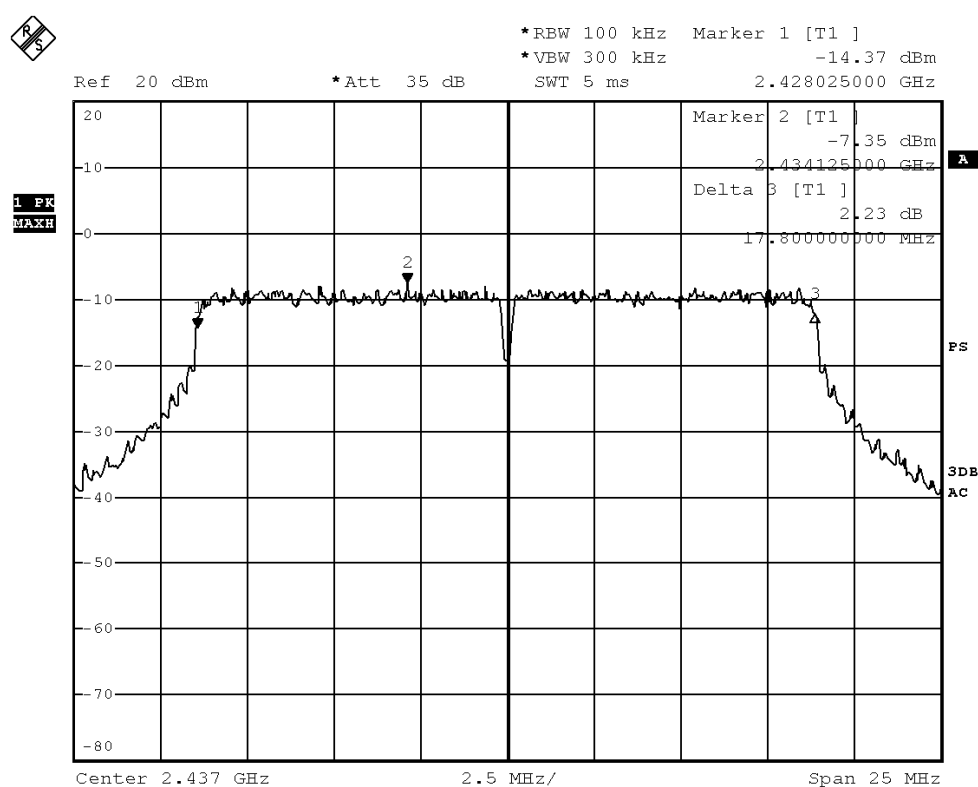
Page 62 of 107

No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2437.0	17.800	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n20 (2437MHz)



BMP

Date: 10.MAY.2015 15:58:56

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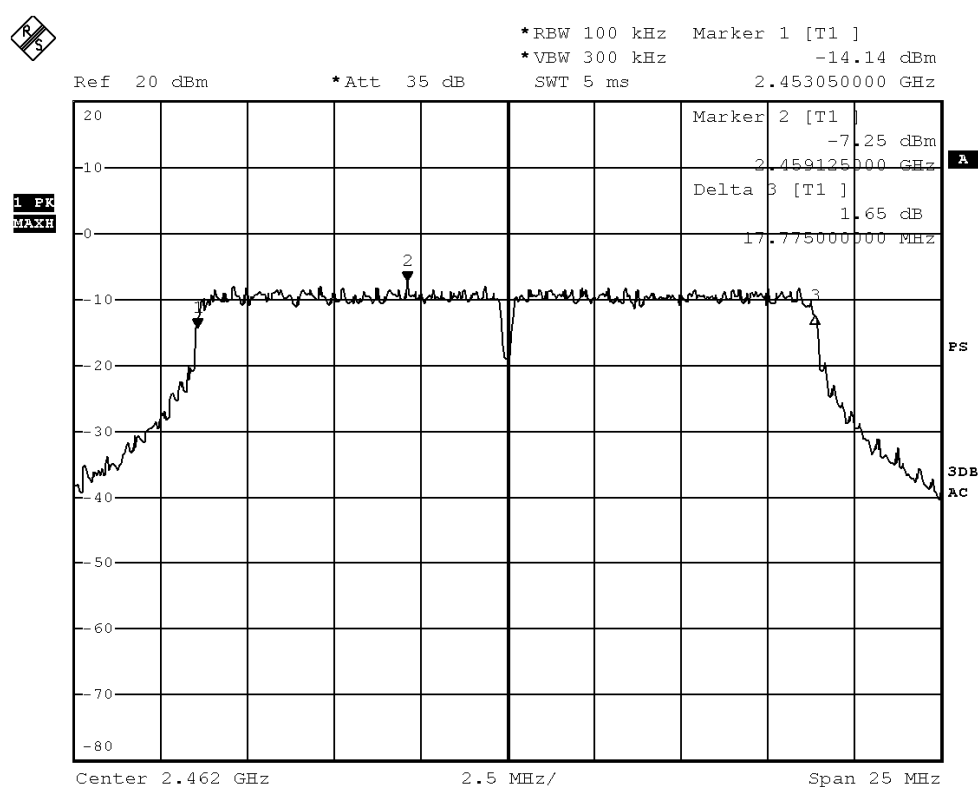
Page 63 of 107

No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2462.0	17.775	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n20 (2462MHz)



BMP

Date: 10.MAY.2015 15:56:09

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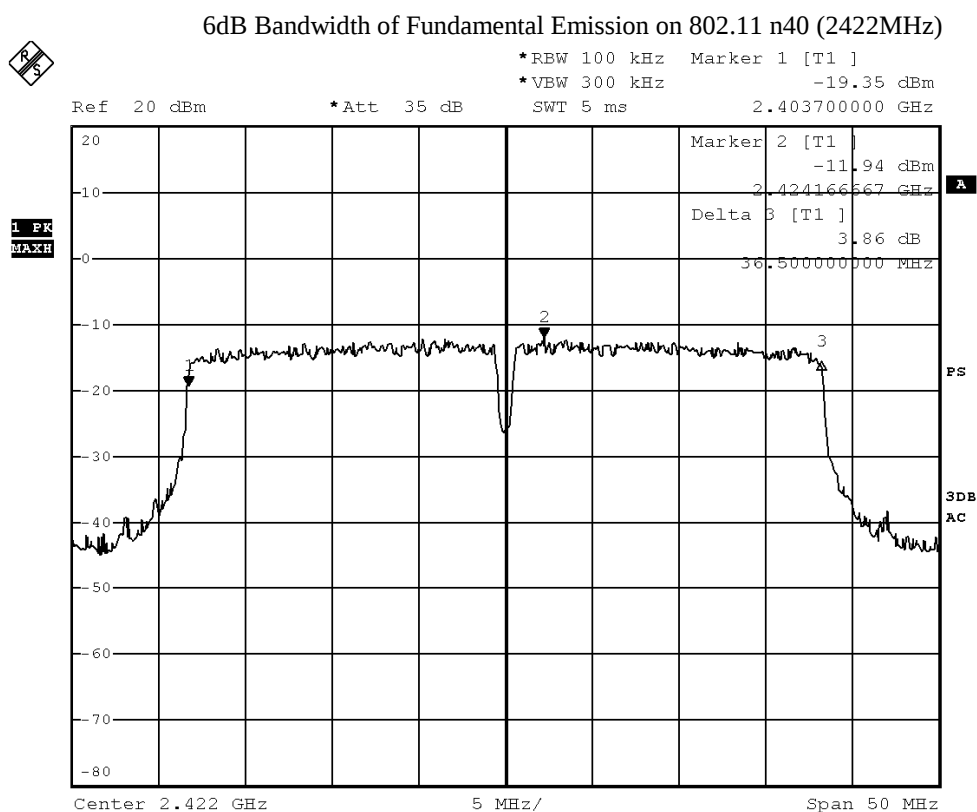
Date: 2015-05-13

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No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2422.0	36.50	> 500



BMP

Date: 10.MAY.2015 16:01:53

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Date: 2015-05-13

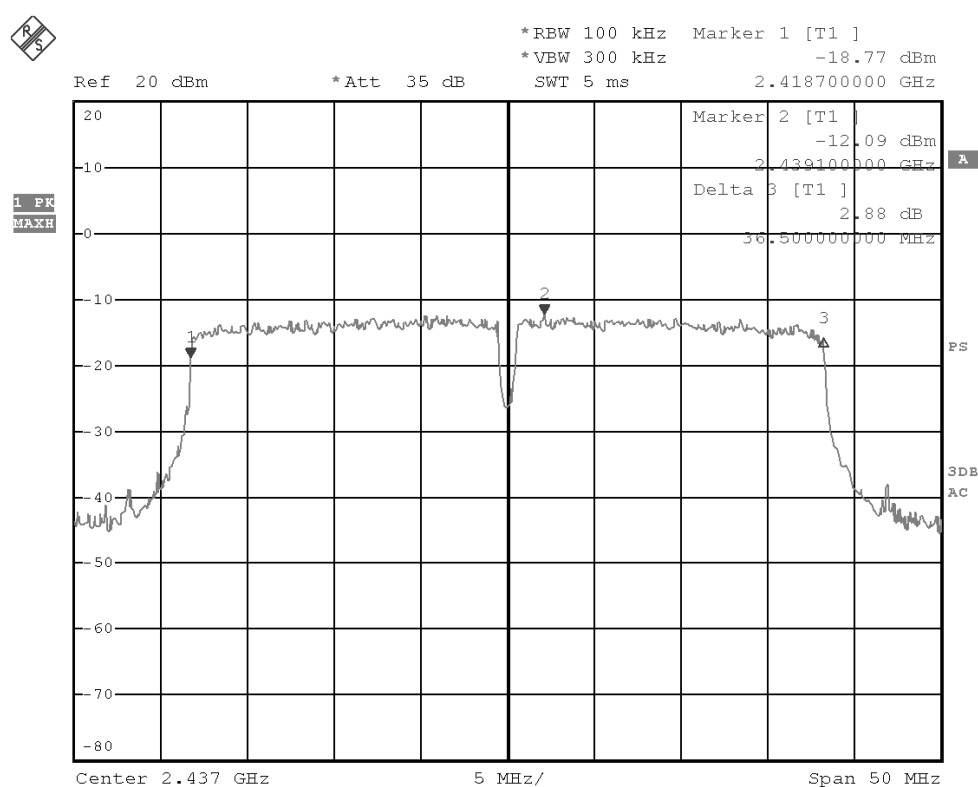
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No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2437.0	36.50	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n40 (2437MHz)



BMP

Date: 10.MAY.2015 16:12:06

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Date: 2015-05-13

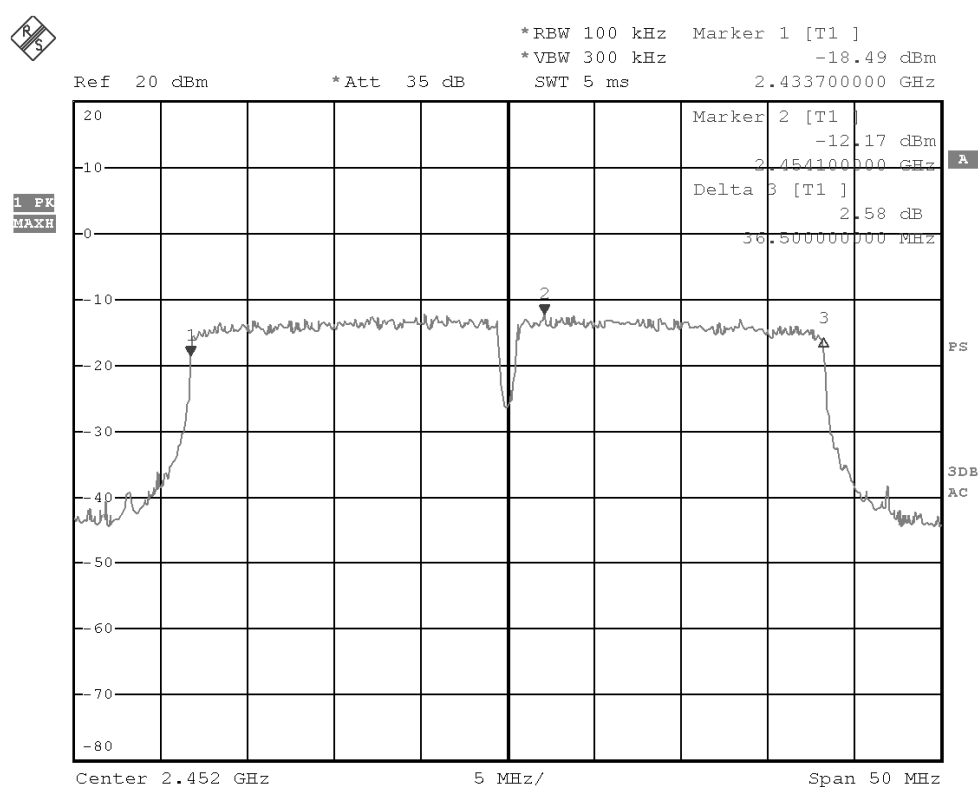
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No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna A):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2452.0	36.500	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n40 (2452MHz)



BMP

Date: 10.MAY.2015 16:13:22

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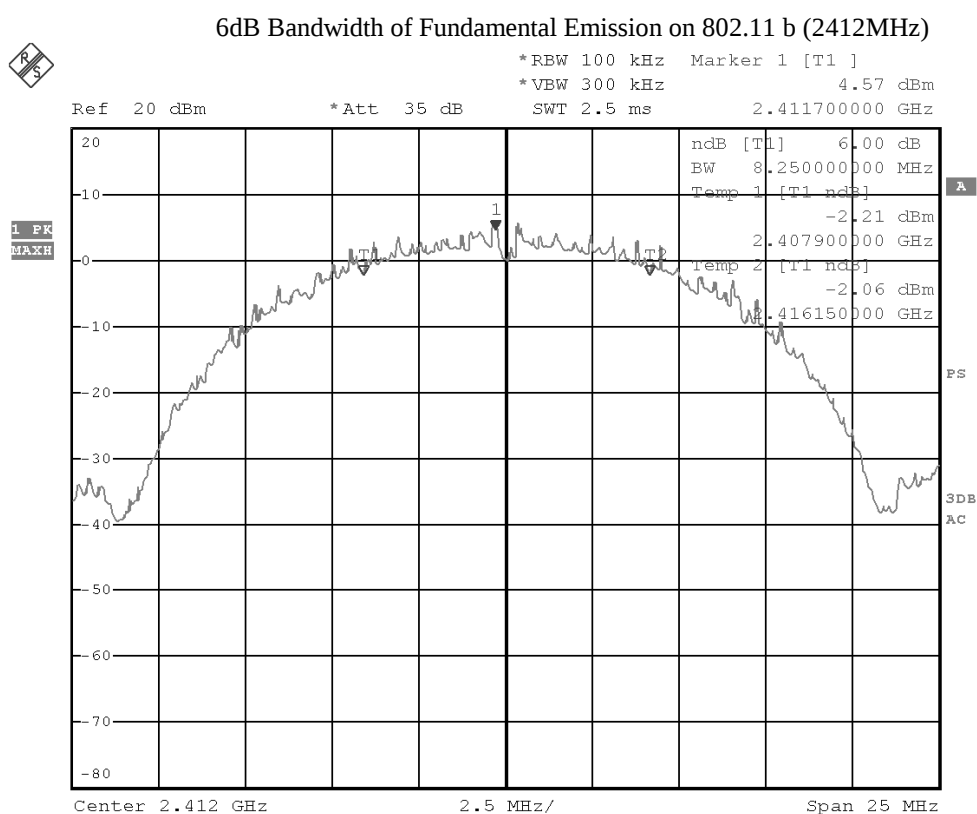
Date: 2015-05-13

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No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2412.0	8.25	> 500



BMP

Date: 10.MAY.2015 16:24:01

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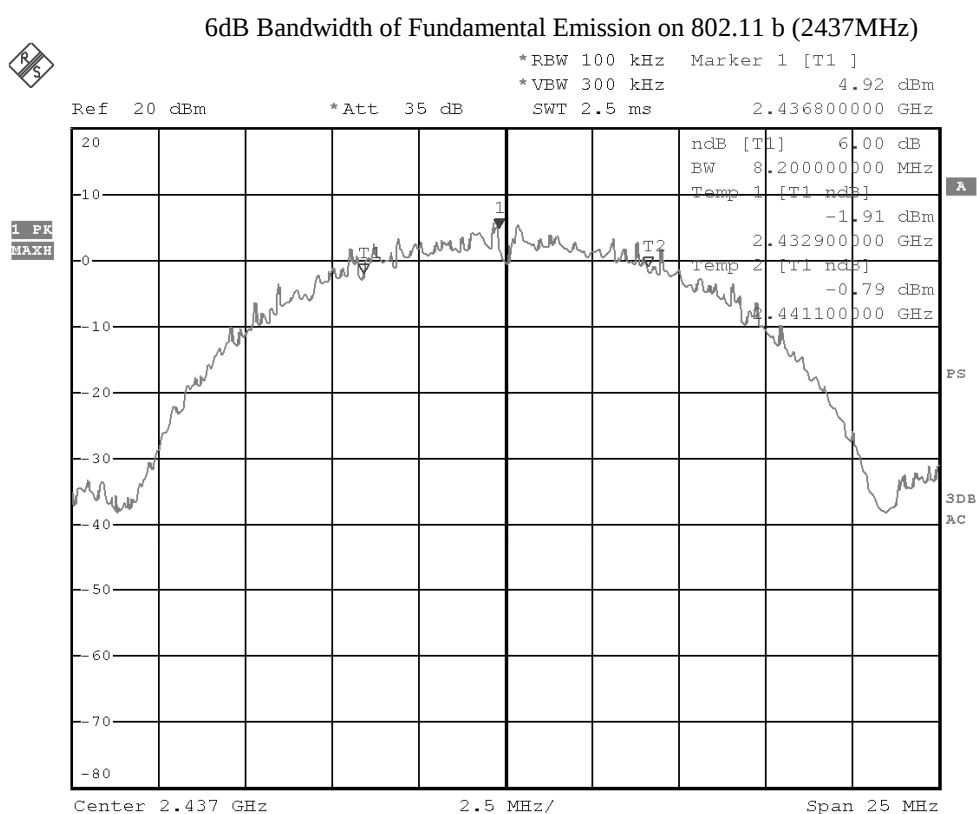
Date: 2015-05-13

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No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2437.0	8.20	> 500



BMP

Date: 10.MAY.2015 16:24:55

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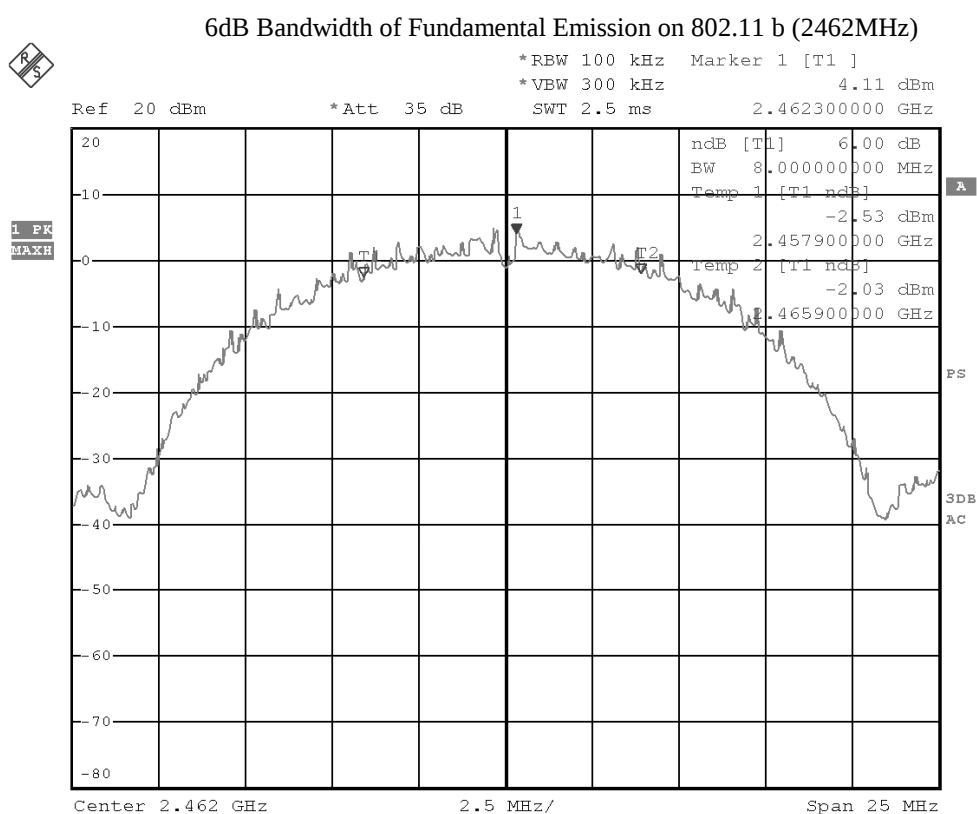
Date: 2015-05-13

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No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2462.0	8.00	> 500



BMP

Date: 10.MAY.2015 16:26:18

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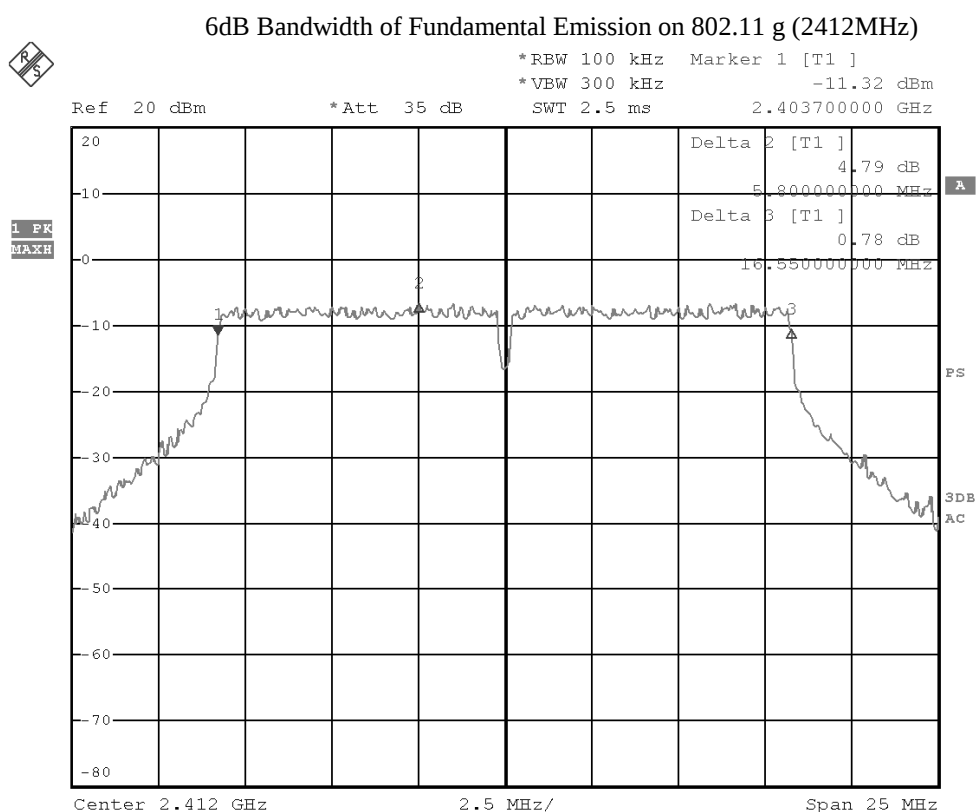
Date: 2015-05-13

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No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2412.0	16.55	> 500



BMP

Date: 10.MAY.2015 16:22:54

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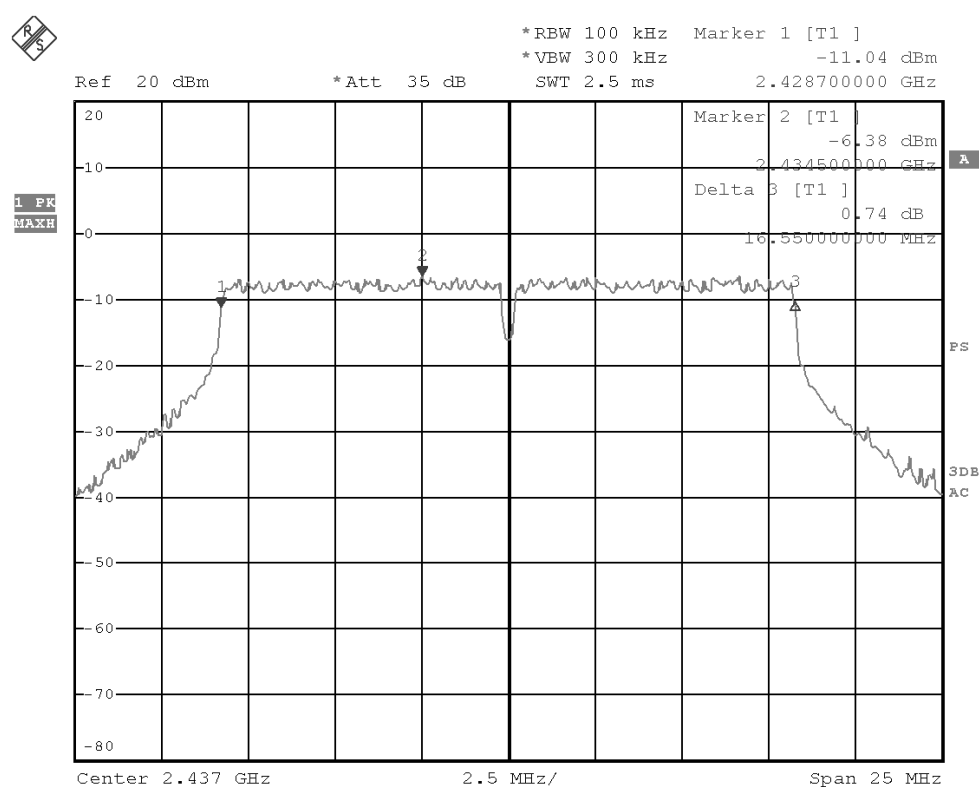
Page 71 of 107

No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2437.0	16.55	> 500

6dB Bandwidth of Fundamental Emission on 802.11 g (2437MHz)



BMP

Date: 10.MAY.2015 16:22:07

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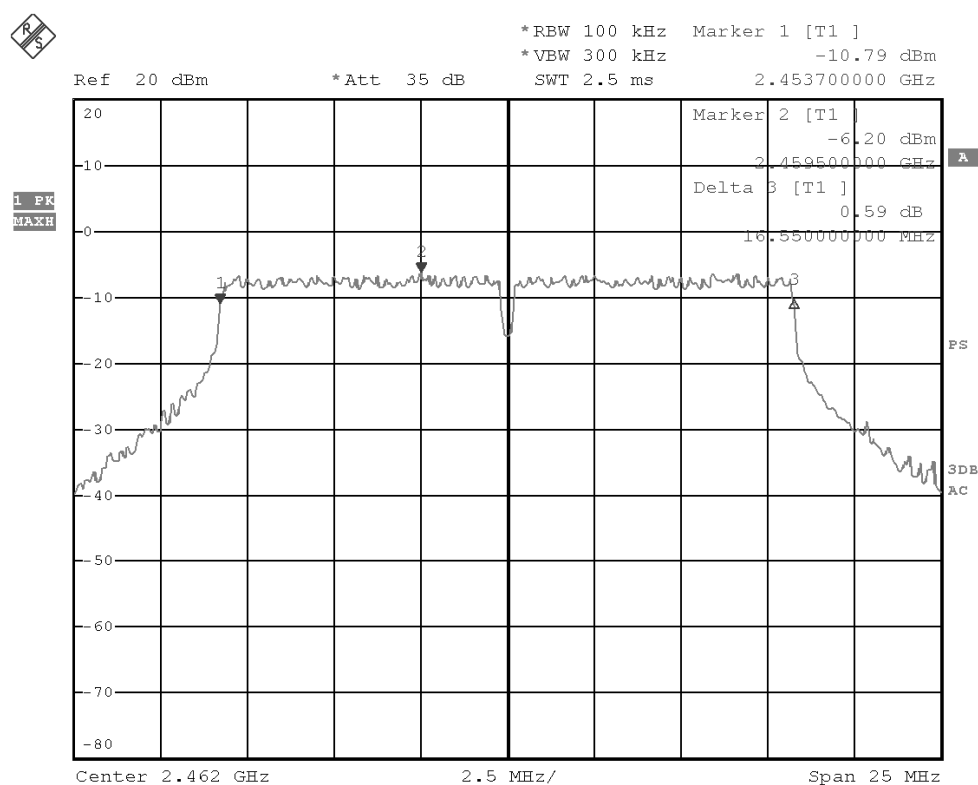
Page 72 of 107

No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2462.0	16.55	> 500

6dB Bandwidth of Fundamental Emission on 802.11 g (2462MHz)



BMP

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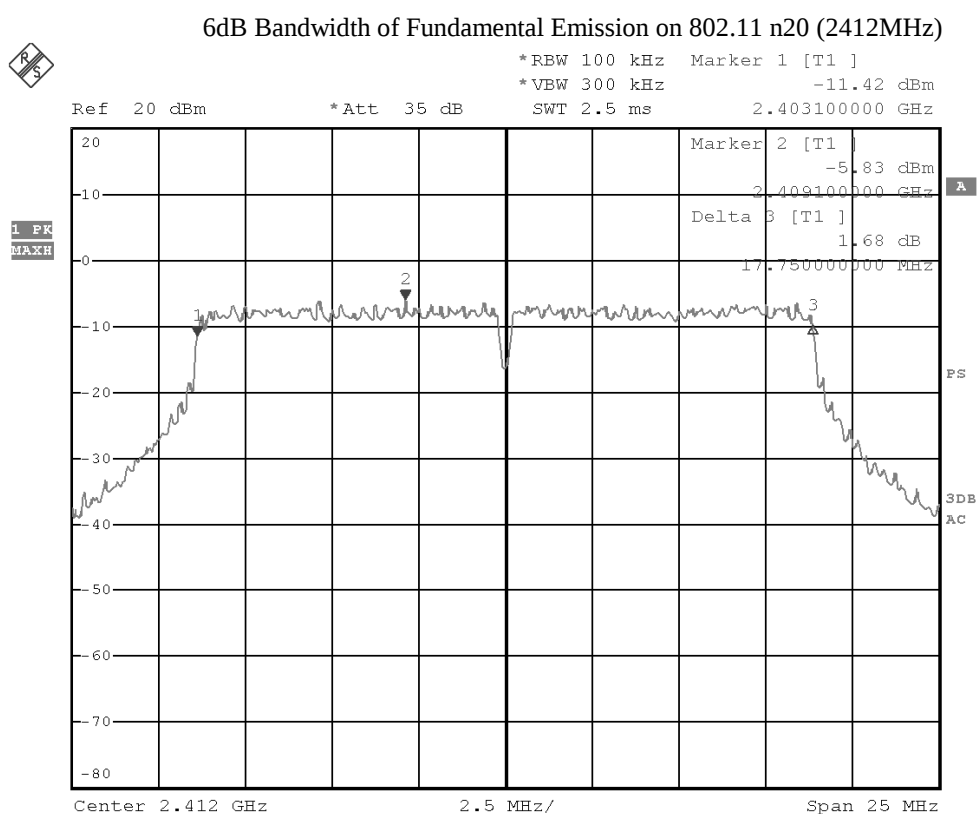
Date: 2015-05-13

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No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2412.0	17.75	> 500



BMP

Date: 10.MAY.2015 16:17:40

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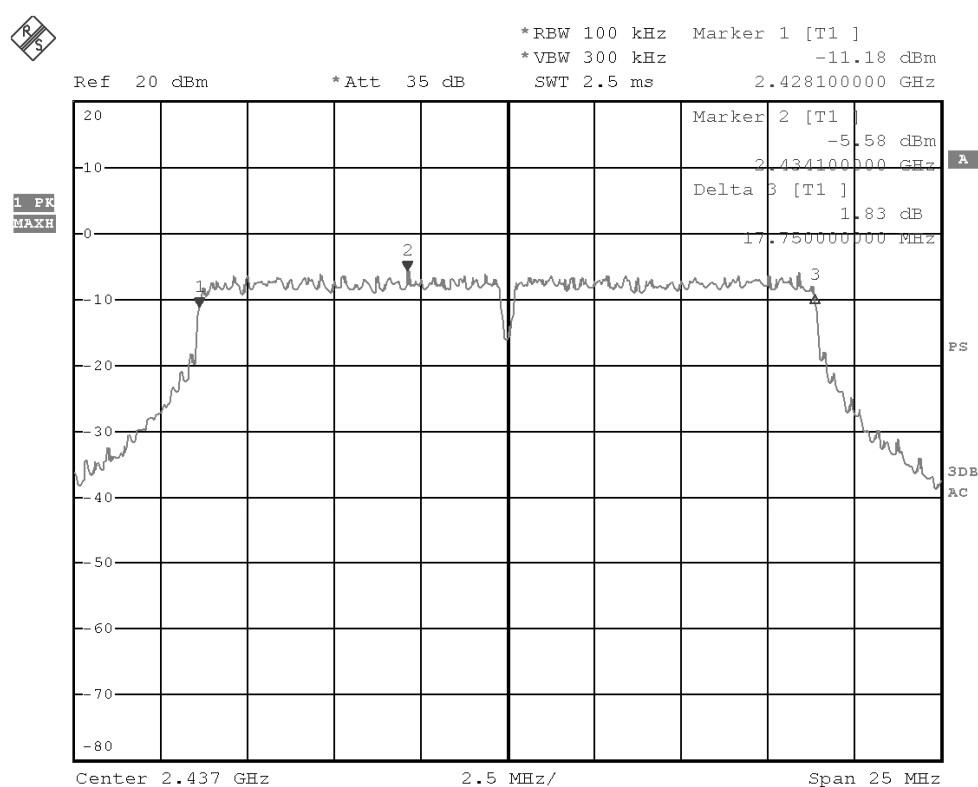
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No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2437.0	17.75	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n20 (2437MHz)



BMP

Date: 10.MAY.2015 16:18:32

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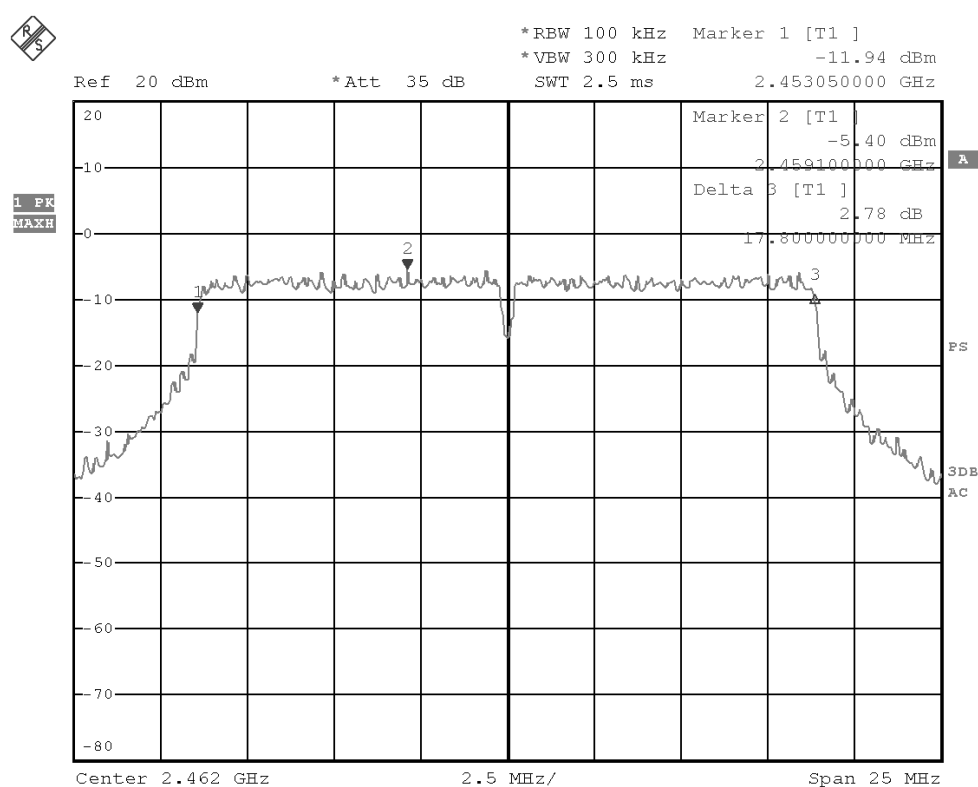
Page 75 of 107

No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2462.0	17.80	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n20 (2462MHz)



BMP

Date: 10.MAY.2015 16:20:06

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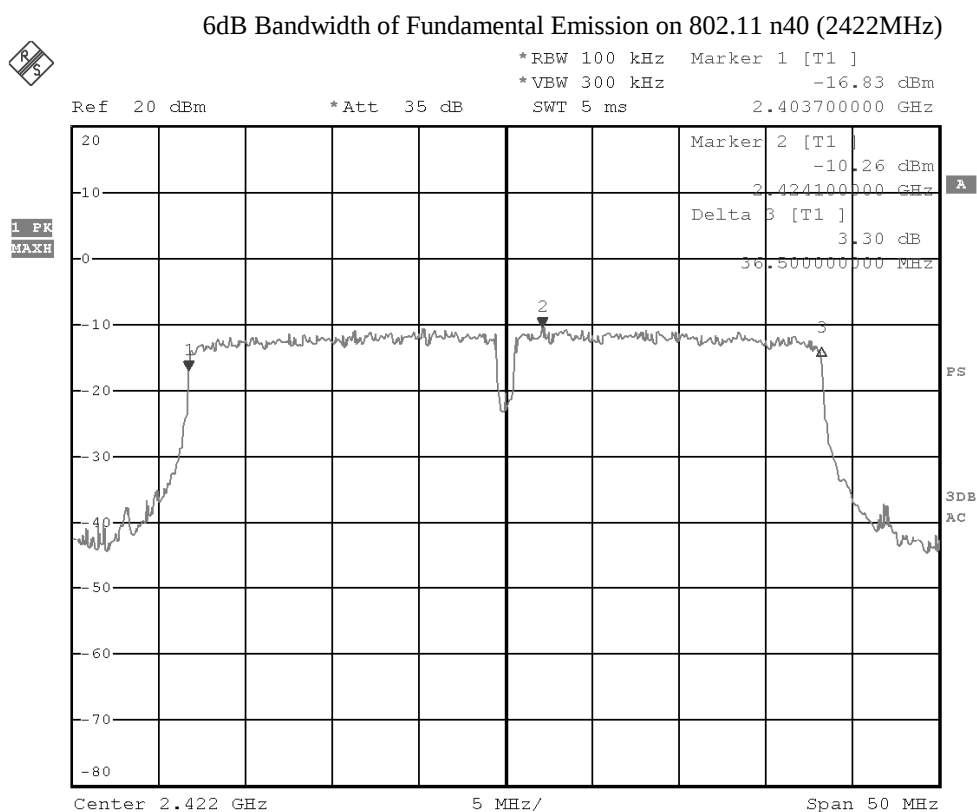
Date: 2015-05-13

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No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Center Frequency [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2422.0	36.50	> 500



BMP

Date: 10.MAY.2015 16:16:47

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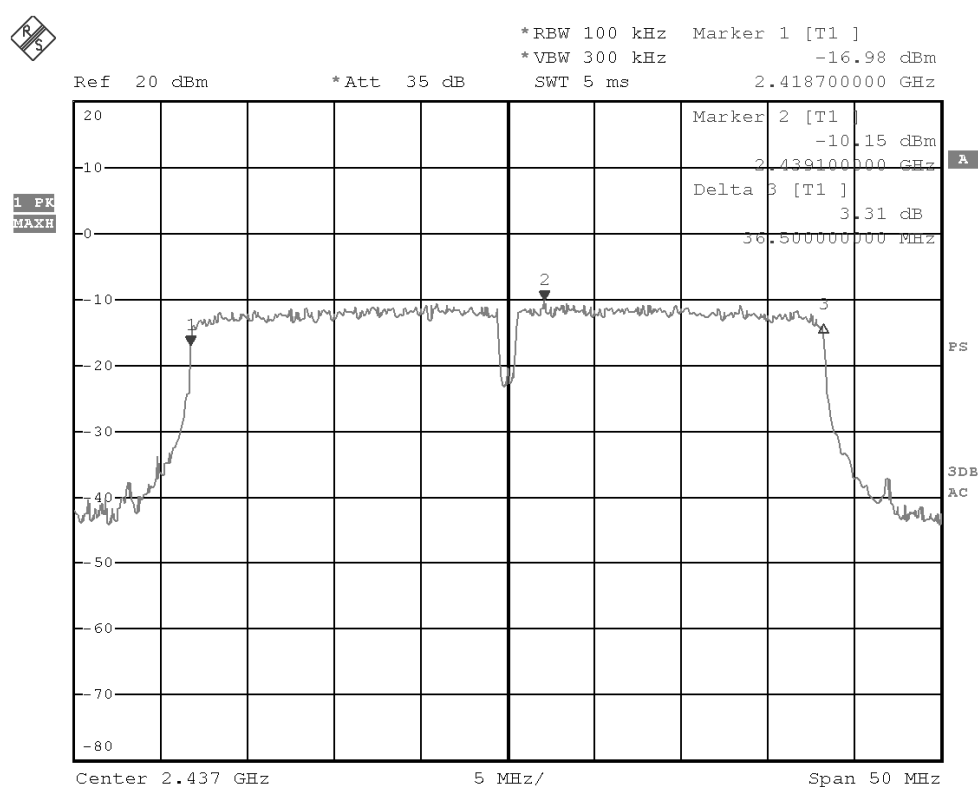
Page 77 of 107

No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2437.0	36.50	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n40 (2437MHz)



BMP

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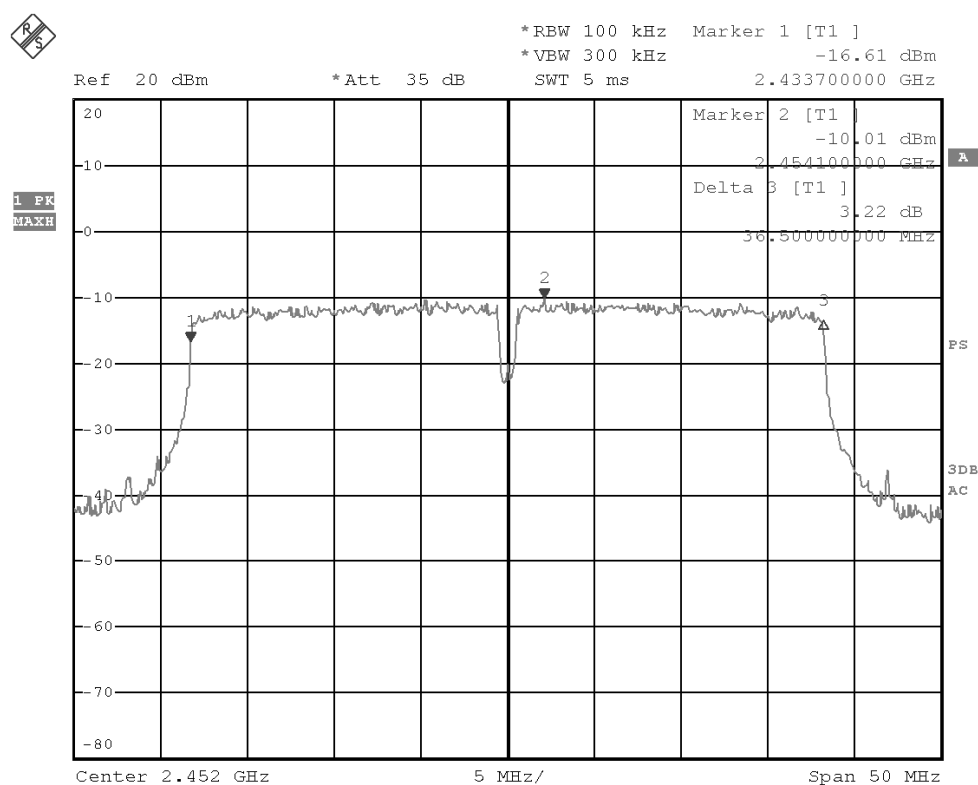
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No.: DM119349

Limits for 6dB Spectrum Bandwidth Measurement (antenna B):

Frequency Range [MHz]	6dB Bandwidth [MHz]	FCC Limits [kHz]
2452.0	36.500	> 500

6dB Bandwidth of Fundamental Emission on 802.11 n40 (2452MHz)



BMP

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Date: 2015-05-13

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No.: DM119349

3.1.5 Band Edges Measurement

Test Requirement:	FCC 47CFR 15.247
Test Method:	ANSI C63.4:2009
Test Date:	2015-05-10
Mode of Operation:	WiFi mode

Test Method:

The band edge is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. The RBW and VBW are set to 100kHz for this measurement.

Test Setup:

As Test Setup of clause 3.1.2 in this test report.

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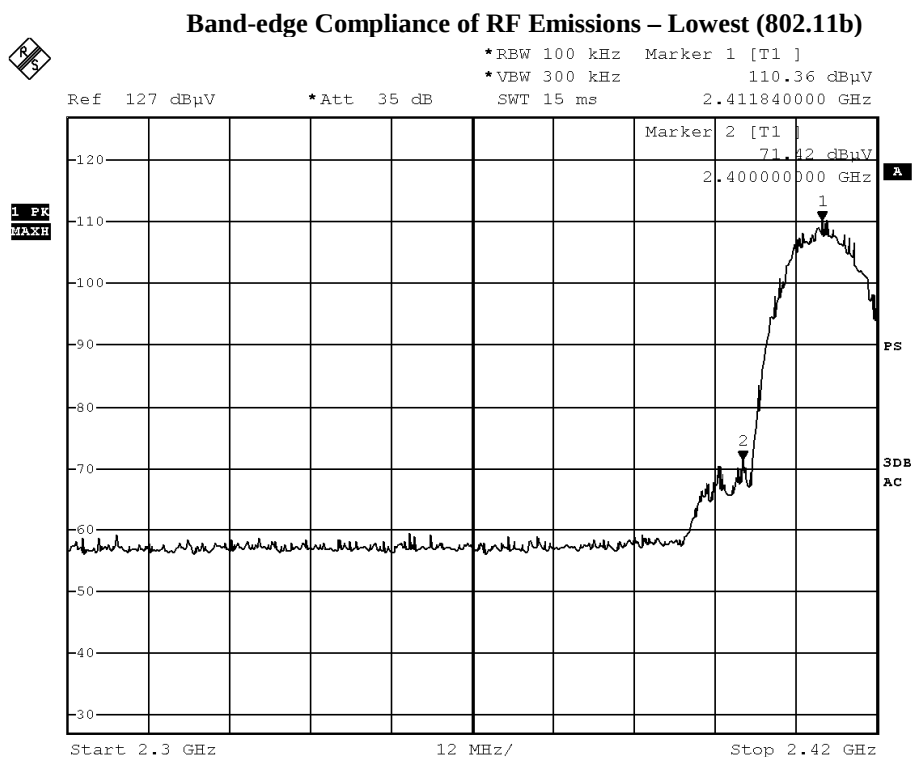
No.: DM119349

Band-edge Compliance of RF Conducted Emissions Measurement (antenna A):

Limit :

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required.

Frequency Range	Radiated Emission Attenuated below the Fundamental
[MHz]	[dB]
2400 – Lowest Fundamental (2412)	39.24



BMP

Date: 10.MAY.2015 15:34:45

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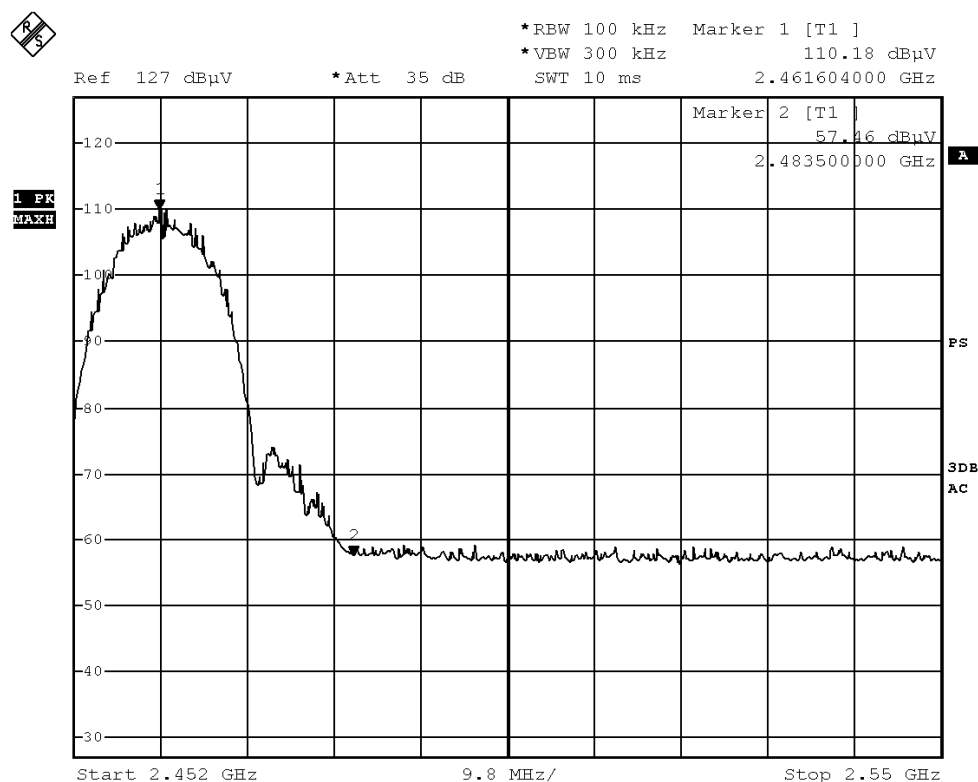
Page 81 of 107

No.: DM119349

Band-edge Compliance of RF Conducted Emissions Measurement (antenna A):

Frequency Range	Radiated Emission Attenuated below the Fundamental
[MHz]	[dB]
2483.5 - Highest Fundamental (2462)	53.02

Band-edge Compliance of RF Emissions – Highest (802.11b)



BMP

Date: 10.MAY.2015 15:37:05

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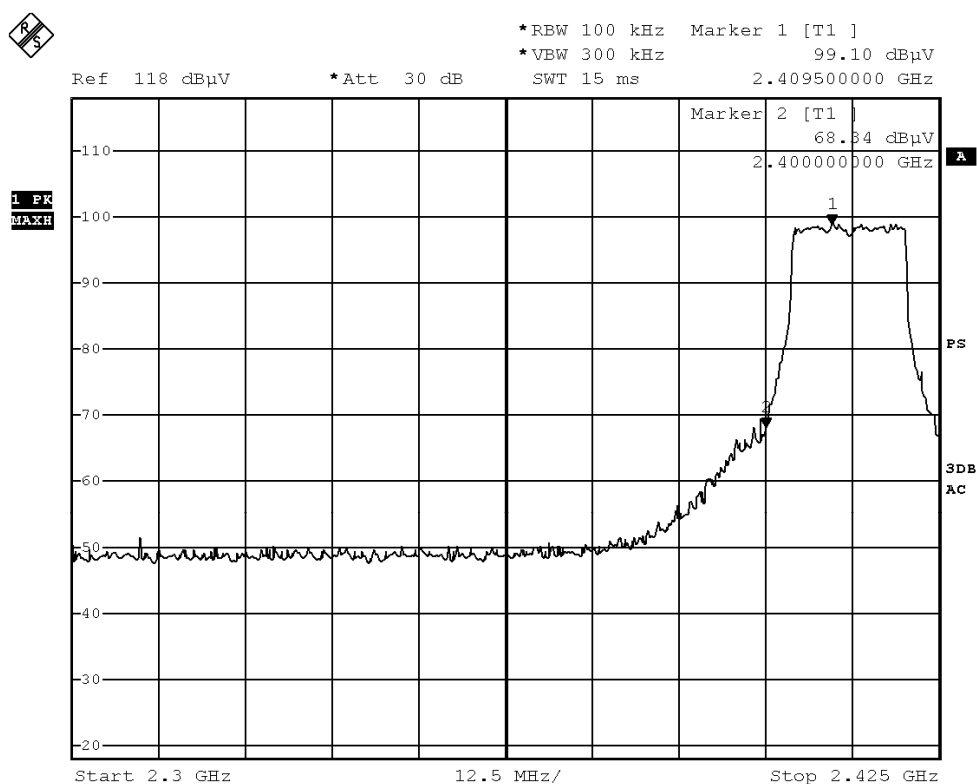
Page 82 of 107

No.: DM119349

Band-edge Compliance of RF Conducted Emissions Measurement (antenna A):

Frequency Range	Radiated Emission Attenuated below the Fundamental
[MHz]	[dB]
2400 – Lowest Fundamental (2412)	30.76

Band-edge Compliance of RF Emissions – Lowest (802.11g)



BMP

Date: 10.MAY.2015 15:32:22

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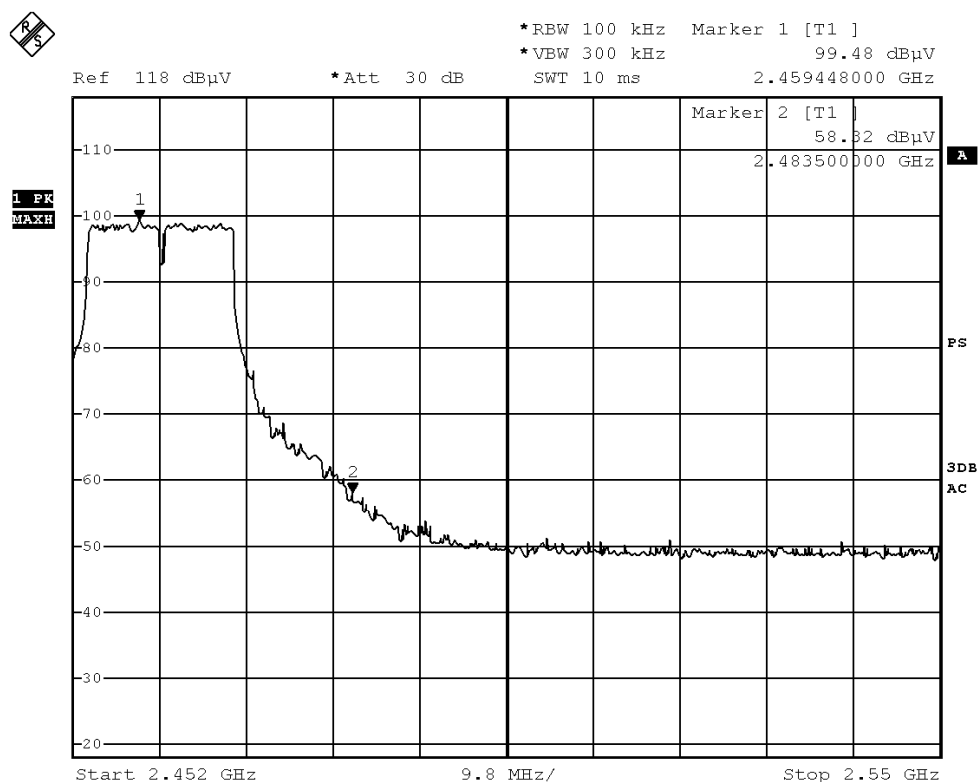
Page 83 of 107

No.: DM119349

Band-edge Compliance of RF Conducted Emissions Measurement (antenna A):

Frequency Range	Radiated Emission Attenuated below the Fundamental
[MHz]	[dB]
2483.5 - Highest Fundamental (2462)	41.16

Band-edge Compliance of RF Emissions – Highest (802.11g)



BMP

Date: 10.MAY.2015 15:31:18

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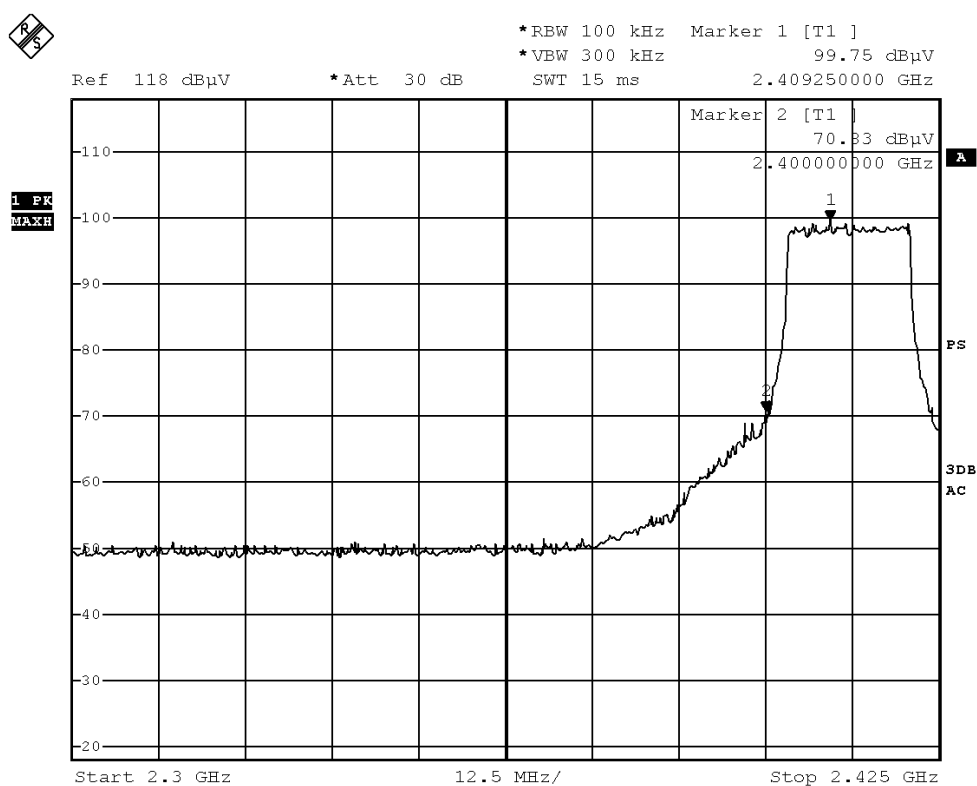
Page 84 of 107

No.: DM119349

Band-edge Compliance of RF Conducted Emissions Measurement (antenna A):

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2400 – Lowest Fundamental (2412)	28.92

Band-edge Compliance of RF Emissions – Lowest (802.11n20)



BMP

Date: 10.MAY.2015 15:28:19

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No.: DM119349

Band-edge Compliance of RF Conducted Emissions Measurement (antenna A):

Frequency Range	Radiated Emission Attenuated below the Fundamental
[MHz]	[dB]
2483.5 - Highest Fundamental (2462)	38.53

Band-edge Compliance of RF Emissions – Highest (802.11n20)

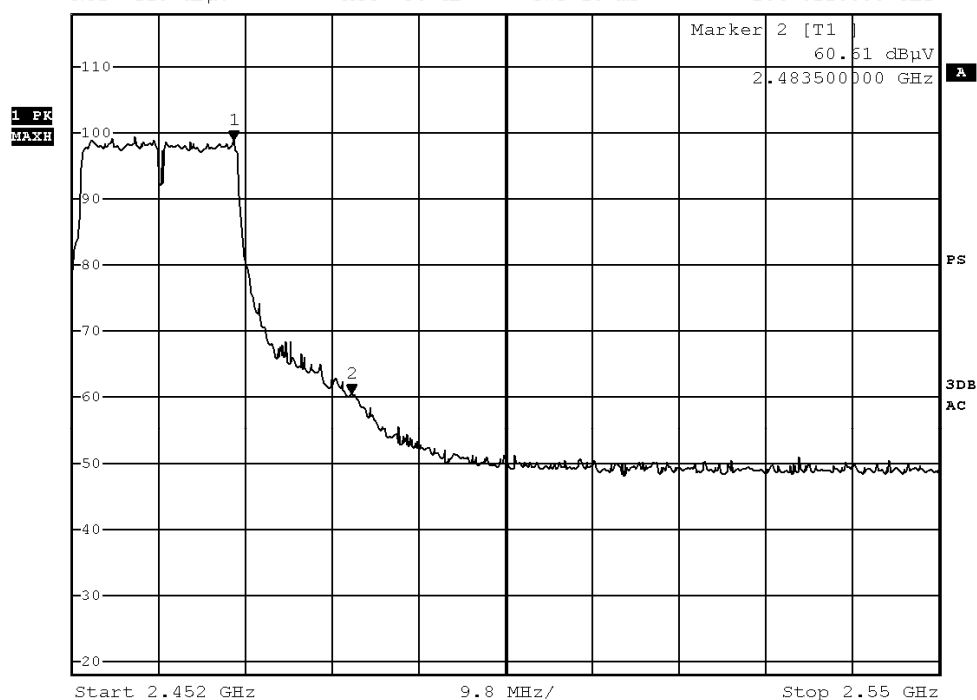


*RBW 100 kHz Marker 1 [T1]
*VBW 300 kHz 99.04 dBμV
SWT 10 ms 2.470228000 GHz

Ref 118 dBμV

*Att 30 dB

2.470228000 GHz



BMP

Date: 10.MAY.2015 15:29:56

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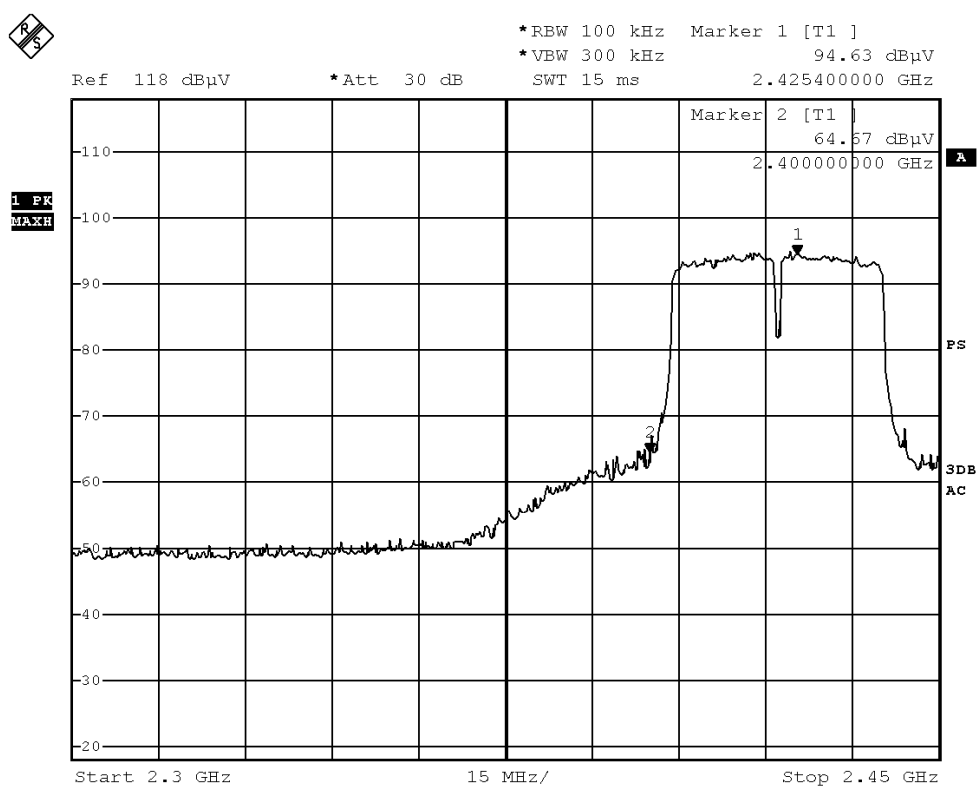
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No.: DM119349

Band-edge Compliance of RF Conducted Emissions Measurement (antenna A):

Frequency Range	Radiated Emission Attenuated below the Fundamental
[MHz]	[dB]
2400 – Lowest Fundamental (2422)	30.06

Band-edge Compliance of RF Emissions – Lowest (802.11n40)



BMP

Date: 10.MAY.2015 15:23:18

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No.: DM119349

Band-edge Compliance of RF Conducted Emissions Measurement (antenna A):

Frequency Range	Radiated Emission Attenuated below the Fundamental
[MHz]	[dB]
2483.5 - Highest Fundamental (2452)	32.40

Band-edge Compliance of RF Emissions – Highest (802.11n40)

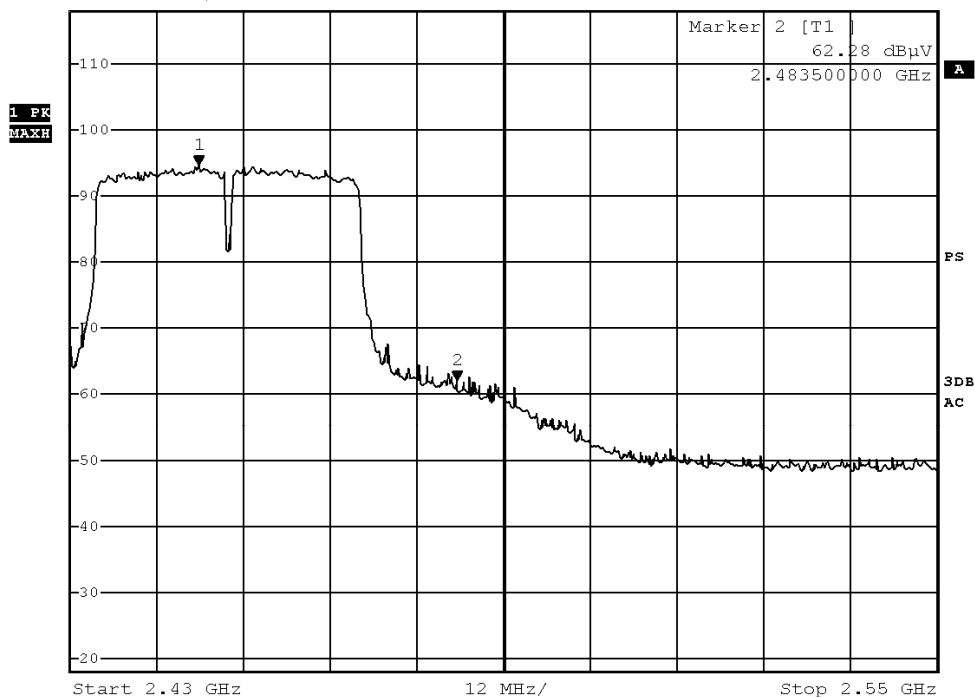


*RBW 100 kHz Marker 1 [T1]
*VBW 300 kHz 94.68 dBμV
SWT 15 ms 2.447760000 GHz

Ref 118 dBμV

*Att 30 dB

2.447760000 GHz



BMP

Date: 10.MAY.2015 15:20:47

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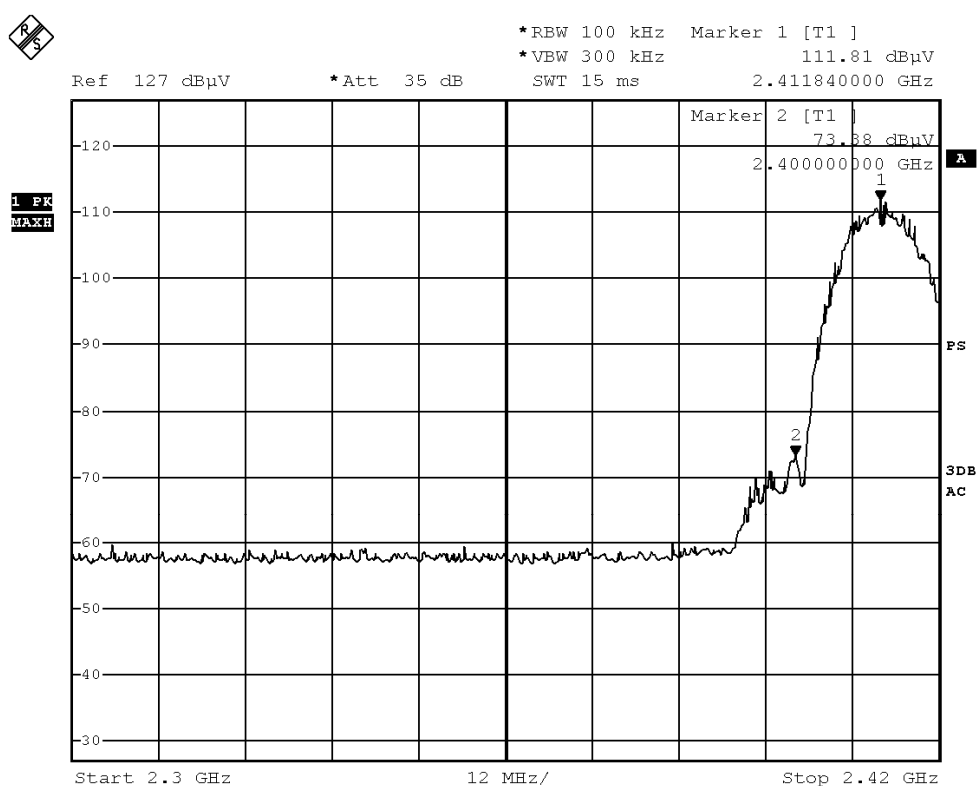
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No.: DM119349

Band-edge Compliance of RF Conducted Emissions Measurement (antenna B):

Frequency Range	Radiated Emission Attenuated below the Fundamental
[MHz]	[dB]
2400 – Lowest Fundamental (2412)	38.43

Band-edge Compliance of RF Emissions – Lowest (802.11b)



BMP

Date: 10.MAY.2015 15:01:38

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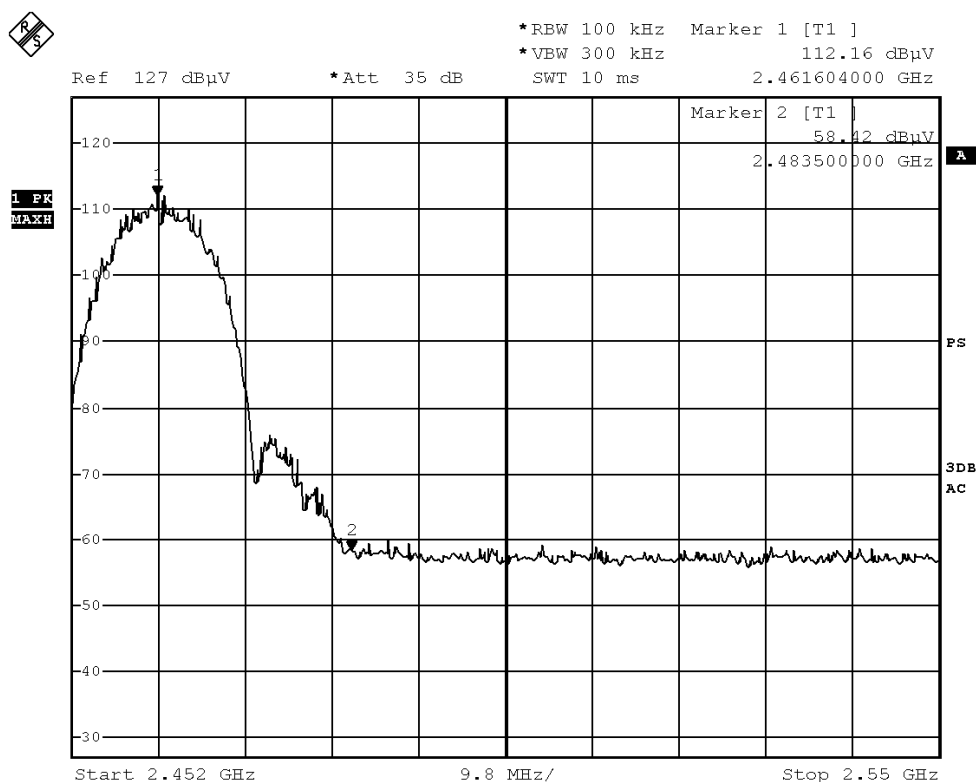
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No.: DM119349

Band-edge Compliance of RF Conducted Emissions Measurement (antenna B):

Frequency Range	Radiated Emission Attenuated below the Fundamental
[MHz]	[dB]
2483.5 - Highest Fundamental (2462)	53.74

Band-edge Compliance of RF Emissions – Highest (802.11b)



BMP

Date: 10.MAY.2015 15:02:45

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Date: 2015-05-13

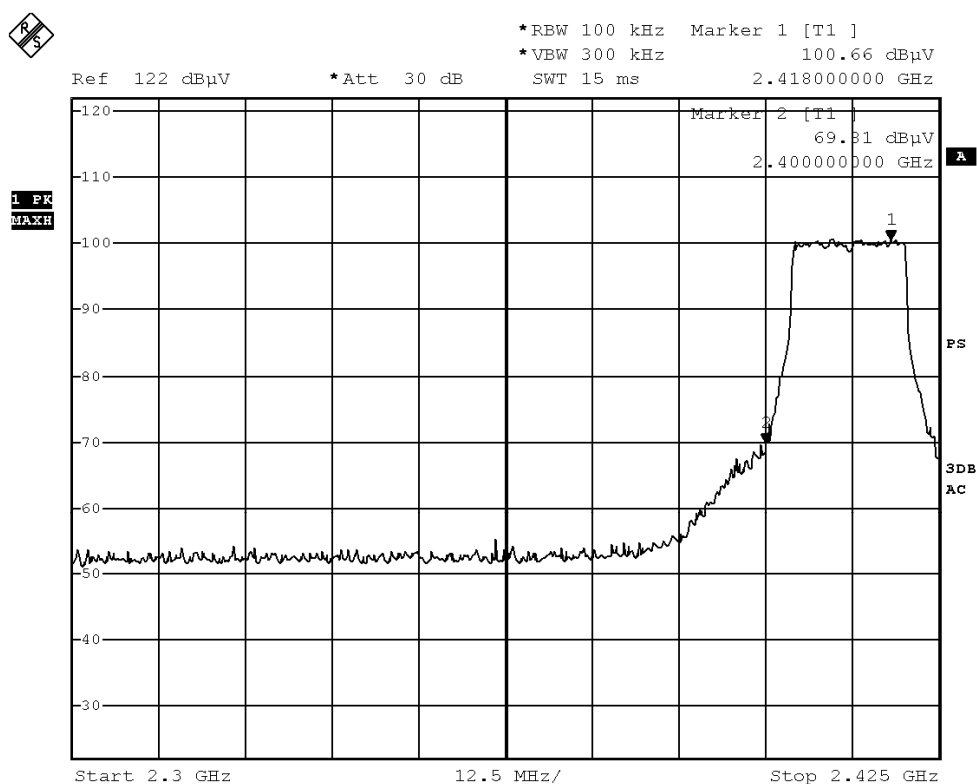
Page 90 of 107

No.: DM119349

Band-edge Compliance of RF Conducted Emissions Measurement (antenna B):

Frequency Range	Radiated Emission Attenuated below the Fundamental
[MHz]	[dB]
2400 – Lowest Fundamental (2412)	30.85

Band-edge Compliance of RF Emissions – Lowest (802.11g)



BMP

Date: 10.MAY.2015 15:05:38

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Date: 2015-05-13

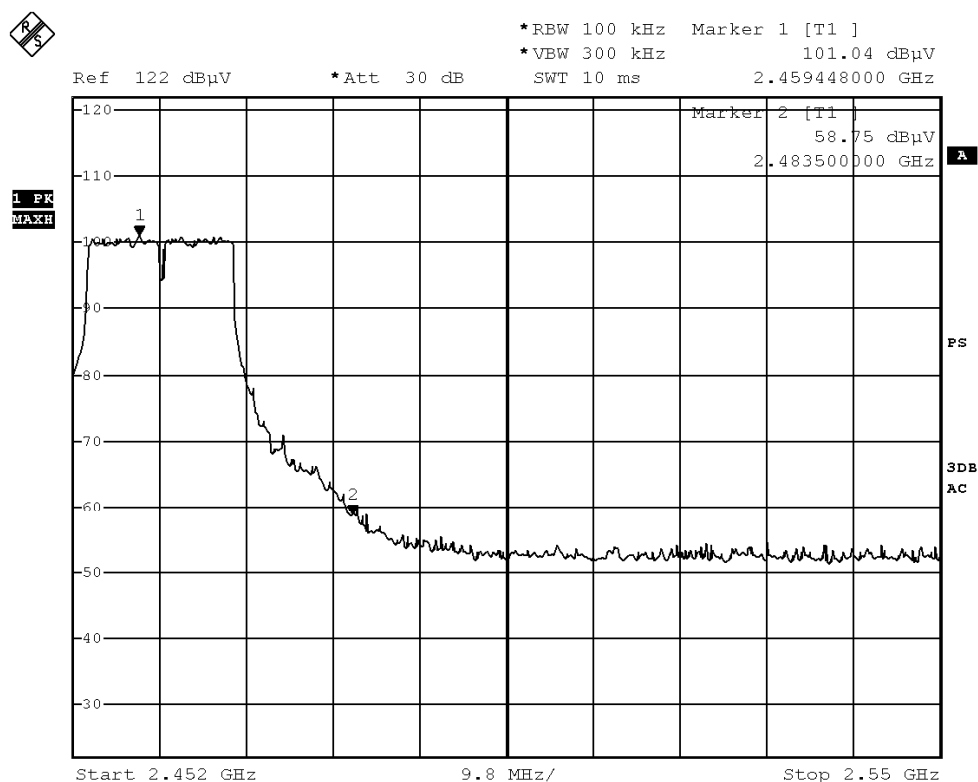
Page 91 of 107

No.: DM119349

Band-edge Compliance of RF Conducted Emissions Measurement (antenna B):

Frequency Range	Radiated Emission Attenuated below the Fundamental
[MHz]	[dB]
2483.5 - Highest Fundamental (2462)	42.29

Band-edge Compliance of RF Emissions – Highest (802.11g)



BMP

Date: 10.MAY.2015 15:04:29

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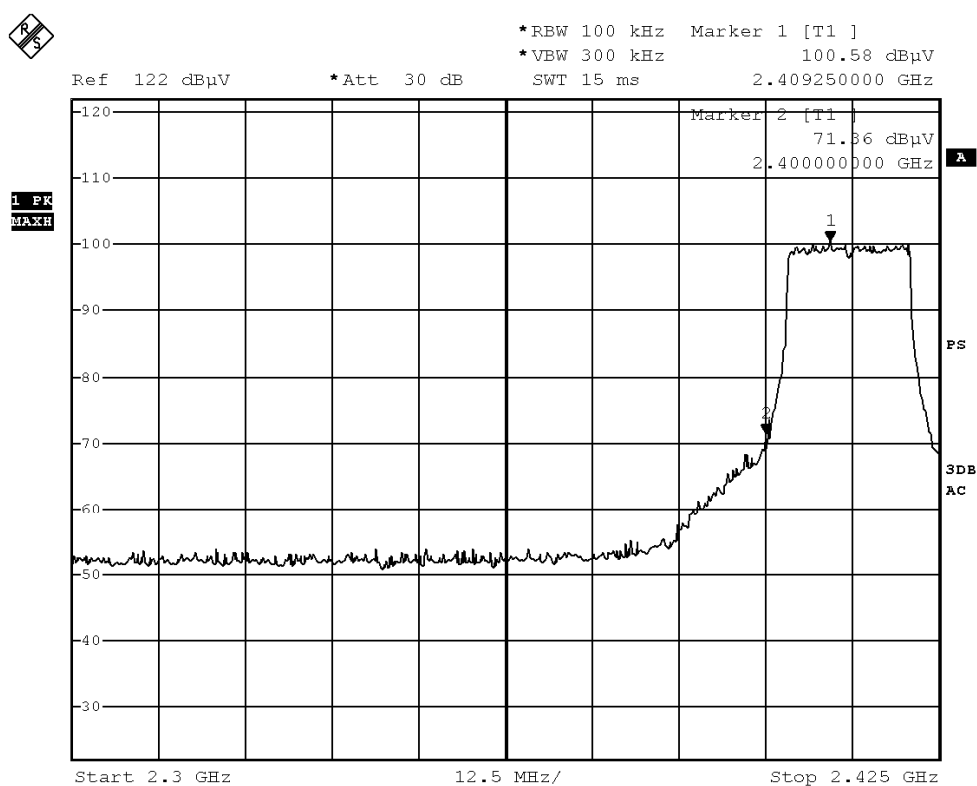
Page 92 of 107

No.: DM119349

Band-edge Compliance of RF Conducted Emissions Measurement (antenna B):

Frequency Range	Radiated Emission Attenuated below the Fundamental
[MHz]	[dB]
2400 – Lowest Fundamental (2412)	29.22

Band-edge Compliance of RF Emissions – Lowest (802.11n20)



BMP

Date: 10.MAY.2015 15:07:37

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STC Test Report

Date: 2015-05-13

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No.: DM119349

Band-edge Compliance of RF Conducted Emissions Measurement (antenna B):

Frequency Range	Radiated Emission Attenuated below the Fundamental
[MHz]	[dB]
2483.5 - Highest Fundamental (2462)	39.78

Band-edge Compliance of RF Emissions – Highest (802.11n20)

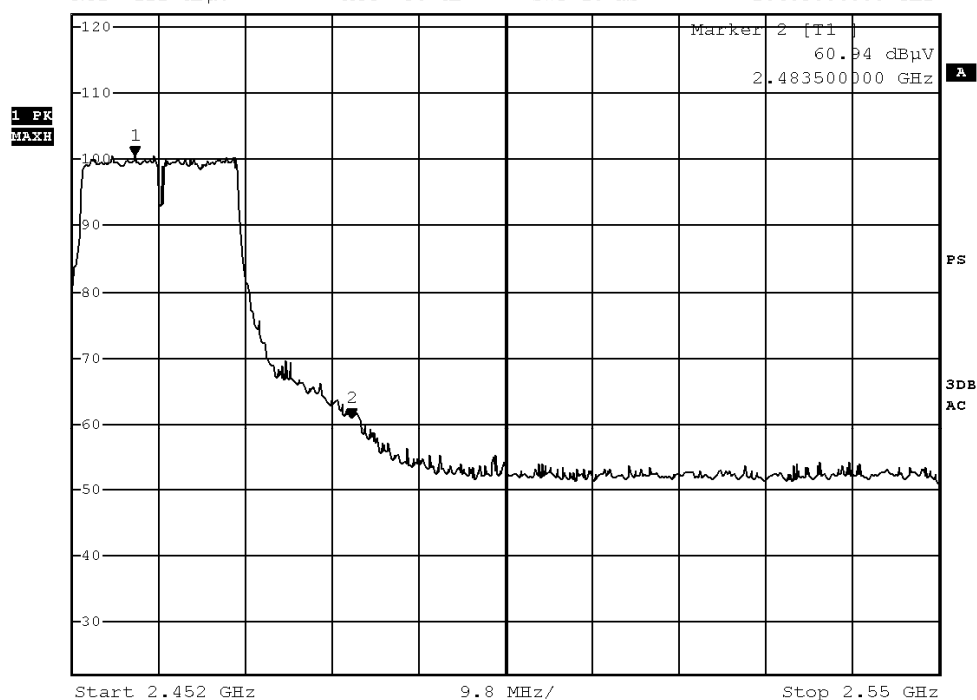


*RBW 100 kHz Marker 1 [T1]
*VBW 300 kHz 100.72 dBμV
SWT 10 ms 2.459056000 GHz

Ref 122 dBμV

*Att 30 dB

2.459056000 GHz



BMP

Date: 10.MAY.2015 15:10:00

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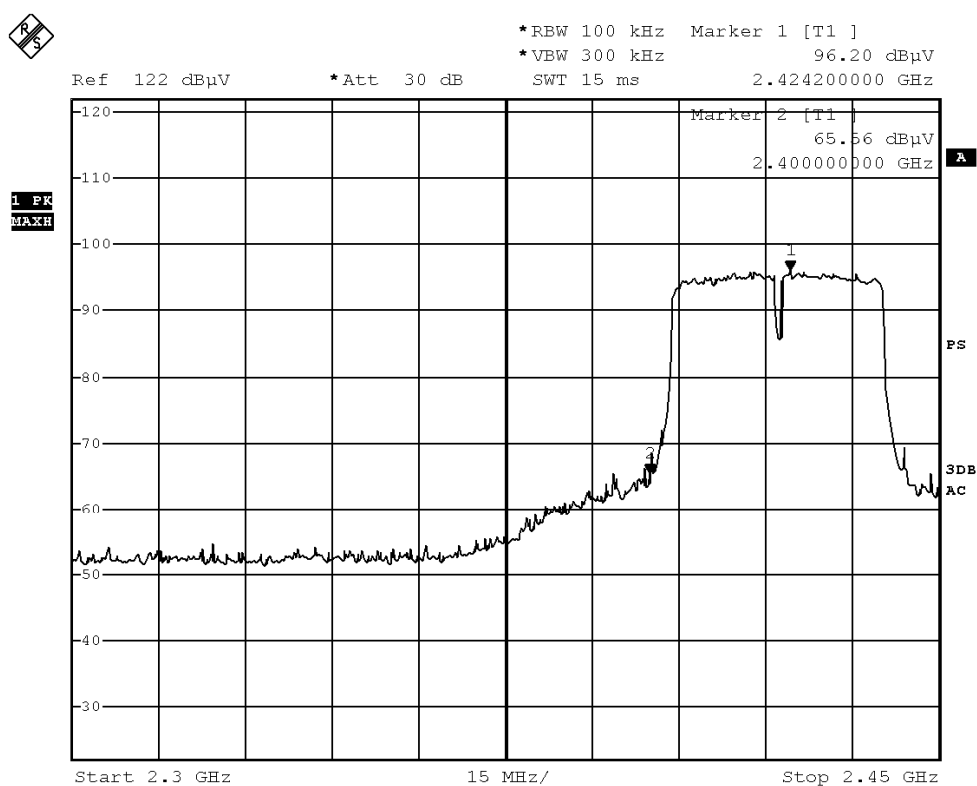
Page 94 of 107

No.: DM119349

Band-edge Compliance of RF Conducted Emissions Measurement (antenna B):

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
2400 – Lowest Fundamental (2422)	30.64

Band-edge Compliance of RF Emissions – Lowest (802.11n40)



BMP

Date: 10.MAY.2015 15:13:06

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Date: 2015-05-13

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Band-edge Compliance of RF Conducted Emissions Measurement (antenna B):

Frequency Range	Radiated Emission Attenuated below the Fundamental
[MHz]	[dB]
2483.5 - Highest Fundamental (2452)	33.65

Band-edge Compliance of RF Emissions – Highest (802.11n40)

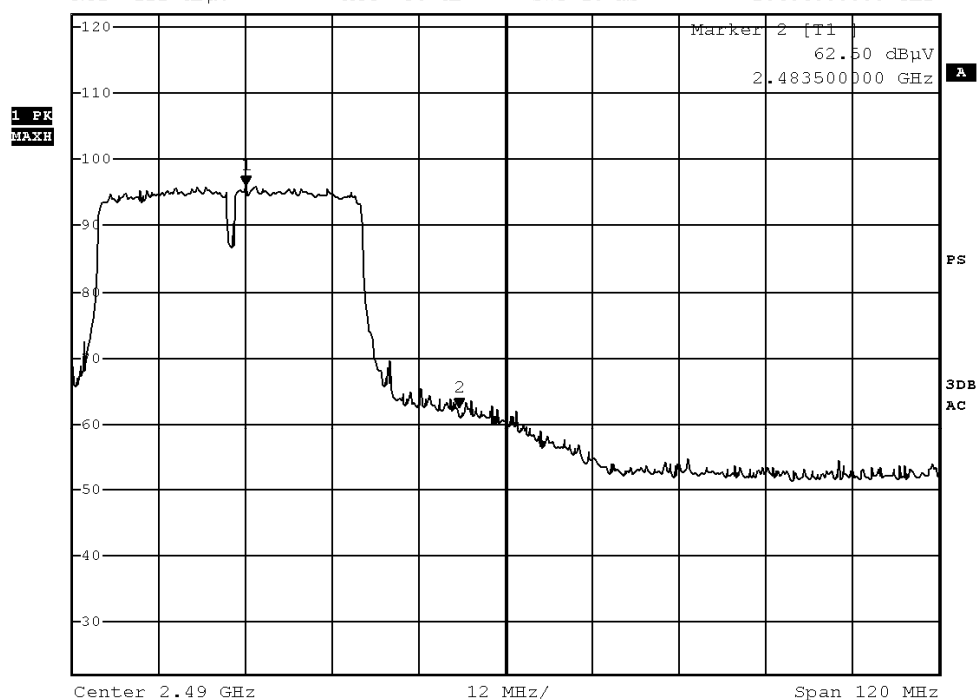


*RBW 100 kHz Marker 1 [T1]
*VBW 300 kHz 96.15 dBμV
SWT 15 ms 2.454000000 GHz

Ref 122 dBμV

*Att 30 dB

2.454000000 GHz



BMP

Date: 10.MAY.2015 15:15:10

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No.: DM119349

Band-edge Compliance of RF Radiated Emissions Measurement:

Limit :

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 5.205(c)).

Result: Band-edge Compliance of RF Radiated Emissions (Lowest)-802.11b

Field Strength of Band-edge Compliance						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
2390.0	18.4	36.8	55.2	74.0	18.8	Vertical

Field Strength of Band-edge Compliance						
Average Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
2390.0	2.9	36.8	39.7	54.0	14.3	Vertical

Result: Band-edge Compliance of RF Radiated Emissions (Highest) -802.11b

Field Strength of Band-edge Compliance						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
2483.5	17.6	36.4	54.0	74.0	20.0	Horizontal

Field Strength of Band-edge Compliance						
Average Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
2483.5	0.8	36.4	37.2	54.0	16.8	Horizontal

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No.: DM119349

Result: Band-edge Compliance of RF Radiated Emissions (Lowest)-802.11g

Field Strength of Band-edge Compliance						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dB μ V	dB/m	dB μ V/m	dB μ V/m	dB μ V/m	
2390.0	22.2	36.8	59.0	74.0	15.0	Vertical

Field Strength of Band-edge Compliance						
Average Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dB μ V	dB/m	dB μ V/m	dB μ V/m	dB μ V/m	
2390.0	14.8	36.8	51.6	54.0	2.4	Vertical

Result: Band-edge Compliance of RF Radiated Emissions (Highest) -802.11g

Field Strength of Band-edge Compliance						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dB μ V	dB/m	dB μ V/m	dB μ V/m	dB μ V/m	
2483.5	22.3	36.4	58.7	74.0	15.3	Horizontal

Field Strength of Band-edge Compliance						
Average Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dB μ V	dB/m	dB μ V/m	dB μ V/m	dB μ V/m	
2483.5	12.9	36.4	49.3	54.0	4.7	Horizontal

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Result: Band-edge Compliance of RF Radiated Emissions (Lowest)-802.11n20

Field Strength of Band-edge Compliance						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
2390.0	23.0	36.8	59.8	74.0	14.2	Vertical

Field Strength of Band-edge Compliance						
Average Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
2390.0	12.7	36.8	49.5	54.0	4.5	Vertical

Result: Band-edge Compliance of RF Radiated Emissions (Highest) -802.11n20

Field Strength of Band-edge Compliance						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
2483.5	24.9	36.4	61.3	74.0	12.7	Horizontal

Field Strength of Band-edge Compliance						
Average Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dBμV	dB/m	dBμV/m	dBμV/m	dBμV/m	
2483.5	15.2	36.4	51.6	54.0	2.4	Horizontal

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Result: Band-edge Compliance of RF Radiated Emissions (Lowest)-802.11n40

Field Strength of Band-edge Compliance						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dB μ V	dB/m	dB μ V/m	dB μ V/m	dB μ V/m	
2390.0	25.4	36.8	62.2	74.0	11.8	Vertical

Field Strength of Band-edge Compliance						
Average Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dB μ V	dB/m	dB μ V/m	dB μ V/m	dB μ V/m	
2390.0	15.6	36.8	52.4	54.0	1.6	Vertical

Result: Band-edge Compliance of RF Radiated Emissions (Highest) -802.11n20

Field Strength of Band-edge Compliance						
Peak Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dB μ V	dB/m	dB μ V/m	dB μ V/m	dB μ V/m	
2483.5	26.2	36.4	62.6	74.0	11.4	Horizontal

Field Strength of Band-edge Compliance						
Average Value						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dB μ V	dB/m	dB μ V/m	dB μ V/m	dB μ V/m	
2483.5	15.9	36.4	52.3	54.0	1.7	Horizontal

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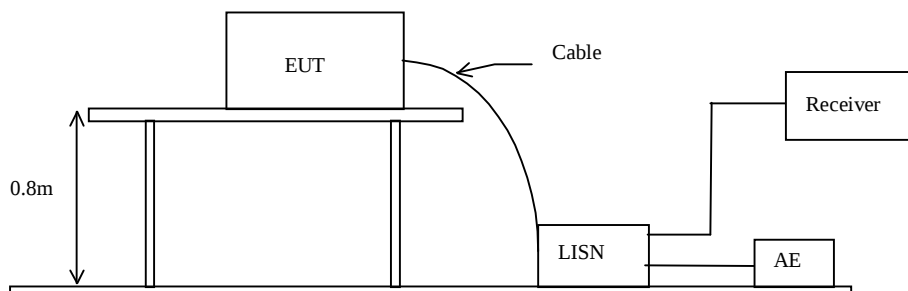
3.1.6 Conducted Emissions (0.15MHz to 30MHz)

Test Requirement:	FCC 47CFR 15.207
Test Method:	ANSI C63.4:2009
Test Date:	2015-05-12
Mode of Operation:	WiFi mode

Test Method:

The test was performed in accordance with ANSI C63.4:2009, with the following: an initial measurement was performed in peak and average detection mode on the live line, any emissions recorded within 30dB of the relevant limit line were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

Test Setup:



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Limit for Conducted Emissions (FCC 47 CFR 15.207):

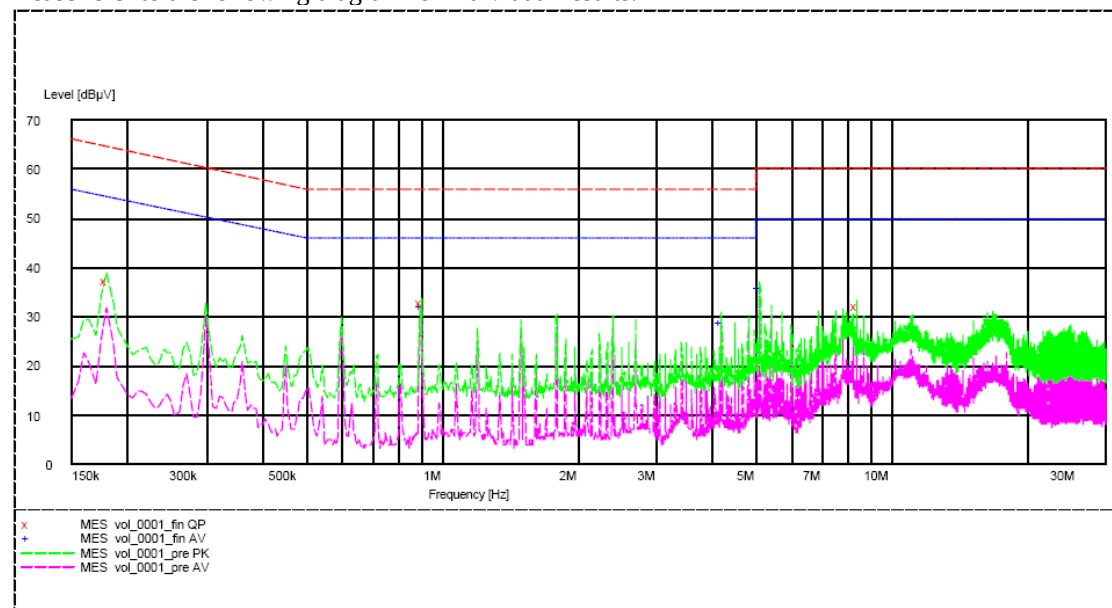
Frequency Range [MHz]	Quasi-Peak Limits [dBμV]	Average [dBμV]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

Limits for Conducted Emissions Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.

Results of WiFi mode (L): PASS

Please refer to the following diagram for individual results.



Conductor	Frequency MHz	Quasi-peak		Average	
		Level dBμV	Limit dBμV	Level dBμV	Limit dBμV
Live or Neutral					
Live	0.900	-*-	-*-	32.0	46.0
Live	4.195	-*-	-*-	28.8	46.0
Live	5.095	-*-	-*-	35.9	50.0
Live	0.180	37.3	65.0	-*-	-*-
Live	0.900	33.0	56.0	-*-	-*-
Live	8.395	32.2	60.0	-*-	-*-

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No.: DM119349

Limit for Conducted Emissions (FCC 47 CFR 15.207):

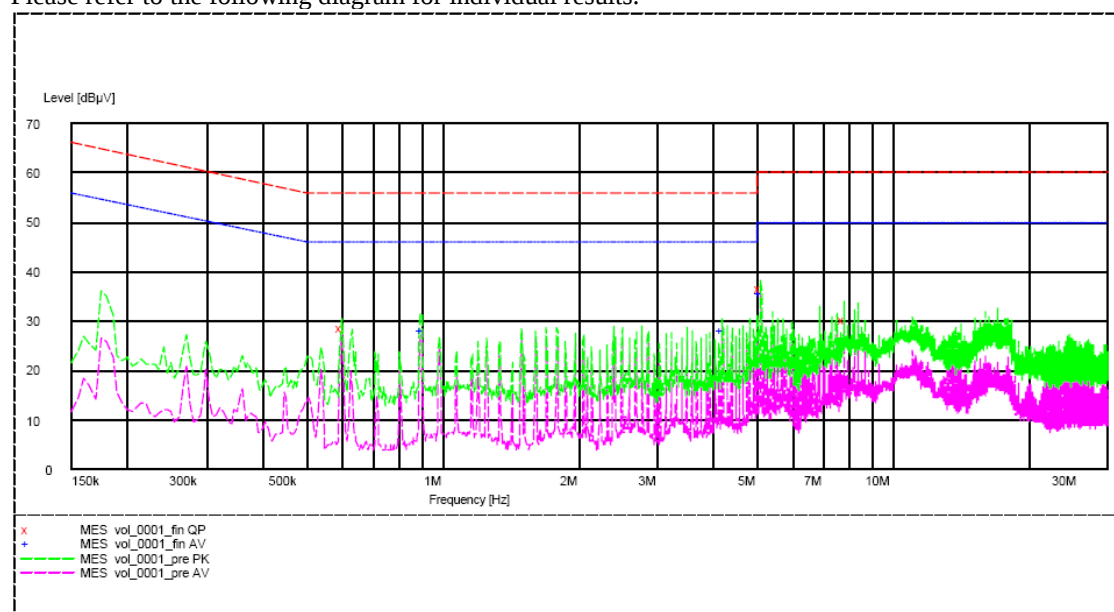
Frequency Range [MHz]	Quasi-Peak Limits [dBμV]	Average [dBμV]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

Limits for Conducted Emissions Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.

Results of WiFi mode (N): PASS

Please refer to the following diagram for individual results.



Conductor	Frequency MHz	Quasi-peak		Average	
		Level dBμV	Limit dBμV	Level dBμV	Limit dBμV
Live or Neutral					
Neutral	0.900	-*-	-*-	28.3	46.0
Neutral	4.195	-*-	-*-	28.4	46.0
Neutral	5.095	-*-	-*-	35.6	50.0
Neutral	0.600	28.5	56.0	-*-	-*-
Neutral	5.095	36.8	60.0	-*-	-*-
Neutral	7.790	30.5	60.0	-*-	-*-

Remarks:

Calculated measurement uncertainty (0.15MHz - 30MHz): 3.2dB

-*- Emission(s) that is far below the corresponding limit line.

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Date: 2015-05-13

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Appendix A

List of Measurement Equipment

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EMD004	LISN	ROHDE & SCHWARZ	ESH3-Z5	100102	2015.3.24	2016.3.24
EMD022	EMI Test Receiver	ROHDE & SCHWARZ	ESCS30	100314	2015.3.24	2016.3.24
EMD035	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100441	2014.06.10	2015.06.10
EMD036	EMI Test Receiver	ROHDE & SCHWARZ	ESIB 26	100388	2014.06.10	2015.06.10
EMD041	TWO-LINE V-NETWORK	ROHDE & SCHWARZ	ENV216	100261	2015.3.24	2016.3.24
EMD061	Biconilog Antenna	ETS.LINDGREN	3142C	00060439	2014.11.29	2016.11.29
EMD062	Double-Ridged Waveguide (1GHz – 18GHz)	ETS.LINDGREN	3117	00075933	2014.11.15	2015.11.15
EMD084	MULTI-DVICE CONTROLLER	ETS.LINDGREN	2090	00060107	N/A	N/A
EMD088	Video Contol Unit	ETS.LINDGREN	Y21953A	2601073	N/A	N/A
EMD093	Monitor	ViewSonic	VA9036	Q8X064201876	N/A	N/A
EMD102	Intelligent Frequency	Ainuo Instrument Co., Ltd	AN97005SS	79707454	N/A	N/A
EMD103	Intelligent Frequency	Ainuo Instrument Co., Ltd	AN97005SS	79707455	N/A	N/A
EMD105	FACT-3 EMC Chamber	ETS.LINDGREN	FACT-3	3803	N/A	N/A
EMD106	Shielding Room #1	ETS.LINDGREN	RFD-100	3802	N/A	N/A
EMD111	Power meter	ROHDE & SCHWARZ	NRVD	102051	2015.3.24	2016.3.24
	100V Insertion Unit	ROHDE & SCHWARZ	URV5-Z4	100464	2015.3.24	2016.3.24
EMD113	Pre-Amplifier	ROHDE & SCHWARZ	N/A	1129588	2015.3.24	2016.3.24
EMD124	Loop Antenna	ETS-Lindgren	6502	00104905	2014.04.28	2016.04.28
EMD131	Standard Gain Horn Antenna (18GHz – 26.5GHz)	Chengdu AINFO Inc.	JTXLB-42-15-C-KF	J2021100721001	2015.04.09	2017.04.09
RE01	RF cable	N/A	N/A	N/A	2014-9-28	2015-9-27
RE02	RF cable	N/A	N/A	N/A	2014-9-28	2015-9-27

Remarks:-

N/A Not Applicable or Not Available

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Appendix B

Ancillary Equipment

ITEM NO.	DESCRIPTION	MODEL NO.	FCC ID	REMARK
1	DELL COMPUTER	DMC	N/A	N/A
2	DELL MONITOR	E177FPB	ARSCM356N	RESOLUTION 1024*768 (DURING TESTING) 1.0M UNSHIEDED POWER VORD CONNECTED TO THE COMPUTER 1.5M SHIEDED CABLE CONNECTED TO THE COMPUTER
3	DELL KEYBOARD	SK-8110	N/A	1.8M SHIEDED COILED CABLE CONNECTED TO THE COMPUTER
4	DELL MOUSE	N/A	N/A	2.4M UNSHIEDED CABLE CONNECTED TO THE COMPUTER
5	LASER PRINTER	HP LASERJET 1020 PLUS	N/A	1.8M UNSHIEDED POWER CORD 2.8M SHIEDED CABLE (BUNDLED TO 1M) CONNECTED TO THE COMPUTER

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Appendix C

Photographs of EUT

Front View of the product



Rear View of the product



Inside View of the product



Inner Circuit Top View



Inner Circuit Bottom View



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Photographs of EUT

Measurement of Radiated Emission Test Set Up



Measurement of Radiated Emission Test Set Up



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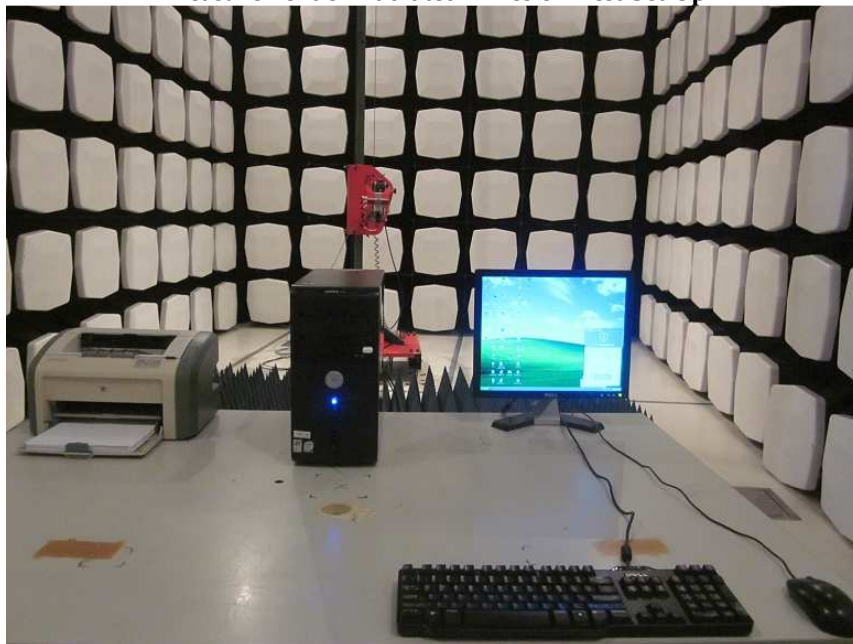
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Photographs of EUT

Measurement of Radiated Emission Test Set Up



Measurement of Conducted Emission Test Set Up



******* End of Test Report *******

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